

23°, 337° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	38°			39°			40°			41°			42°			43°			44°			45°			Dec.
Dec.	Hc	d	Z	Dec.																					
0	46 30.0	+53.5	145.4	45 40.4	+53.9	146.0	44 50.5	+54.3	146.6	44 00.3	+54.6	147.1	43 09.7	+55.0	147.6	42 18.9	+55.3	148.1	41 27.9	+55.5	148.6	40 36.5	+55.9	149.0	0
1	47 23.5	+53.3	144.8	46 34.3	+53.7	145.4	45 44.8	+54.1	146.0	44 54.9	+54.5	146.5	44 04.7	+54.8	147.1	43 14.2	+55.1	147.6	42 23.4	+55.4	148.1	41 32.4	+55.7	148.5	1
2	48 16.8	+53.1	144.1	47 28.0	+53.5	144.7	46 38.9	+53.9	145.3	45 49.4	+54.2	145.9	44 59.5	+54.6	146.5	44 09.3	+55.0	147.0	43 18.8	+55.3	147.5	42 28.1	+55.5	148.0	2
3	49 09.9	+52.8	143.4	48 21.5	+53.3	144.0	47 32.8	+53.6	144.7	46 43.6	+54.1	145.3	45 54.1	+54.5	145.9	45 04.3	+54.8	146.5	44 14.1	+55.1	147.0	43 23.6	+55.5	147.5	3
4	50 02.7	+52.5	142.6	49 14.8	+53.0	143.3	48 26.4	+53.5	144.0	47 37.7	+53.8	144.7	46 48.6	+54.2	145.3	45 59.1	+54.6	145.9	45 09.2	+55.0	146.4	44 19.1	+55.2	147.0	4
5	50 55.2	+52.2	141.9	50 07.8	+52.7	142.6	49 19.9	+53.1	143.3	48 31.5	+53.6	144.0	47 42.8	+54.0	144.7	46 53.7	+54.4	145.3	46 04.2	+54.7	145.9	45 14.3	+55.1	146.4	5
6	51 47.4	+51.9	141.1	51 00.5	+52.4	141.9	50 13.0	+52.9	142.6	49 25.1	+53.4	143.3	48 36.8	+53.8	144.0	47 48.1	+54.1	144.7	46 58.9	+54.6	145.3	46 09.4	+55.0	145.9	6
7	52 39.3	+51.5	140.3	51 52.9	+52.0	141.1	51 05.9	+52.6	141.9	50 18.5	+53.1	142.6	49 30.6	+53.5	143.3	48 42.2	+54.0	144.0	47 53.5	+54.4	144.7	47 04.4	+54.7	145.3	7
8	53 30.8	+51.1	139.4	52 44.9	+51.8	140.3	51 58.5	+52.3	141.1	51 11.6	+52.8	141.9	50 24.1	+53.3	142.6	49 36.2	+53.7	143.3	48 47.9	+54.1	144.0	47 59.1	+54.6	144.7	8
9	54 21.9	+50.7	138.5	53 36.7	+51.3	139.4	52 50.8	+51.9	140.3	52 04.4	+52.4	141.1	51 17.4	+53.0	141.9	50 29.9	+53.5	142.6	49 42.0	+53.9	143.4	48 53.7	+54.3	144.1	9
10	55 12.6	+50.3	137.6	54 28.0	+51.0	138.5	53 42.7	+51.6	139.4	52 56.8	+52.2	140.3	52 10.4	+52.7	141.1	51 23.4	+53.2	141.9	50 35.9	+53.7	142.7	49 48.0	+54.1	143.4	10
11	56 02.9	+49.8	136.6	55 19.0	+50.5	137.6	54 34.3	+51.2	138.6	53 49.0	+51.8	139.5	53 03.1	+52.4	140.4	52 16.6	+52.9	141.2	51 29.6	+53.4	142.0	50 42.1	+53.9	142.7	11
12	56 52.7	+49.4	135.6	56 09.5	+50.0	136.7	55 25.5	+50.7	137.7	54 40.8	+51.4	138.6	53 55.5	+52.0	139.5	53 09.5	+52.6	140.4	52 23.0	+53.1	141.2	51 36.0	+53.6	142.0	12
13	57 42.1	+48.7	134.6	56 59.5	+49.6	135.7	56 16.2	+50.3	136.7	55 32.2	+51.0	137.7	54 47.5	+51.6	138.7	54 02.1	+52.2	139.6	53 16.1	+52.8	140.5	52 29.6	+53.3	141.3	13
14	58 30.8	+48.2	133.5	57 49.1	+49.0	134.6	57 06.5	+49.9	135.7	56 23.2	+50.6	136.8	55 39.1	+51.3	137.8	54 54.3	+51.9	138.7	54 08.9	+52.5	139.7	53 22.9	+53.0	140.5	14
15	59 19.0	+47.5	132.3	58 38.1	+48.4	133.5	57 56.4	+49.2	134.7	57 13.8	+50.0	135.8	56 30.4	+50.8	136.8	55 46.2	+51.5	137.9	55 01.4	+52.1	138.8	54 15.9	+52.7	139.7	15
16	60 06.5	+46.6	131.1	59 26.5	+47.8	132.4	58 45.6	+48.7	133.6	58 03.8	+49.6	134.8	57 21.2	+50.3	135.9	56 37.5	+51.0	136.9	55 53.5	+51.7	137.9	55 08.6	+52.4	138.9	16
17	60 53.3	+46.1	129.8	60 14.3	+47.2	131.2	59 34.3	+48.1	132.5	58 53.4	+48.9	133.7	58 11.5	+49.8	134.9	57 28.7	+50.6	136.0	56 45.2	+51.3	137.0	56 01.0	+51.9	138.0	17
18	61 39.4	+45.2	128.5	61 01.5	+46.3	129.9	60 22.4	+47.4	131.3	59 42.3	+48.4	132.6	59 01.3	+49.2	133.8	58 19.3	+50.1	135.0	57 36.5	+50.9	136.1	56 52.9	+51.6	137.1	18
19	62 24.6	+44.4	127.1	61 47.8	+45.6	128.6	61 09.8	+46.7	130.0	60 30.7	+47.7	131.4	59 50.5	+48.7	132.7	59 09.4	+49.5	133.9	58 27.4	+50.3	135.1	57 44.5	+51.1	136.2	19
20	63 09.0	+43.4	125.6	62 33.4	+44.7	127.2	61 56.5	+45.9	128.7	61 18.4	+47.0	130.1	60 39.2	+48.0	131.5	59 58.9	+49.0	132.8	59 17.7	+49.8	134.0	58 35.6	+50.6	135.2	20
21	63 52.4	+42.4	124.1	63 18.1	+43.7	125.7	62 42.4	+45.0	127.3	62 05.4	+46.2	128.8	61 27.2	+45.7	130.2	60 47.9	+48.3	131.6	60 07.5	+49.3	132.9	59 26.2	+50.1	134.2	21
22	64 34.8	+41.2	122.4	64 01.8	+42.7	124.2	63 27.4	+44.0	125.8	62 51.6	+45.3	127.4	62 14.5	+46.5	128.9	61 36.2	+47.6	130.4	60 56.8	+48.6	131.8	60 16.3	+49.5	133.1	22
23	65 16.0	+40.0	120.7	64 44.5	+41.6	122.6	64 11.4	+43.1	124.3	63 36.9	+44.4	126.0	63 01.0	+45.7	127.6	62 23.8	+46.8	129.1	61 45.4	+47.9	130.5	61 05.8	+48.9	131.9	23
24	65 56.0	+38.6	118.9	65 26.1	+40.3	120.8	64 54.5	+41.9	122.7	64 21.3	+43.4	124.4	63 46.7	+44.7	126.1	63 10.6	+46.0	127.7	62 33.3	+47.2	129.2	61 54.7	+48.3	130.7	24
25	66 34.6	+37.2	117.0	66 06.4	+39.1	119.0	65 36.4	+40.7	121.0	65 04.7	+42.3	122.8	64 31.4	+43.8	124.6	63 56.6	+45.1	126.3	63 20.5	+46.3	127.9	62 43.0	+47.5	129.4	25
26	67 11.8	+35.7	115.0	66 45.5	+37.5	117.1	66 17.1	+39.4	119.2	65 47.0	+41.0	121.1	65 15.2	+42.6	123.0	64 41.7	+44.1	124.8	64 06.8	+45.5	126.4	63 30.5	+46.7	128.1	26
27	67 47.5	+33.9	112.9	67 23.0	+36.0	115.1	66 56.5	+38.0	117.3	66 28.1	+39.8	119.3	65 57.8	+41.5	121.3	65 25.8	+43.1	123.1	64 52.3	+44.4	124.9	64 17.2	+45.8	126.6	27
28	68 21.4	+32.1	110.7	67 59.0	+34.4	113.0	67 34.5	+36.4	115.3	67 07.9	+38.3	117.4	66 39.3	+40.1	119.5	66 08.9	+41.8	121.4	65 36.7	+43.4	123.3	65 03.0	+44.8	125.1	28
29	68 53.5	+30.1	108.4	68 33.4	+32.4	110.8	68 10.9	+34.7	113.1	67 46.2	+36.8	115.4	67 19.4	+38.8	117.6	66 50.7	+40.6	119.6	66 20.1	+42.3	121.6	65 47.8	+43.8	123.5	29
30	69 23.6	+28.0	106.0	69 05.8	+30.5	108.5	68 45.6	+32.8	110.9	68 23.0	+35.1	113.3	67 58.2	+37.2	115.6	67 31.3	+39.1	117.7	67 02.4	+40.9	119.8	66 31.6	+42.6	121.8	30
31	69 51.6	+25.7	103.4	69 36.3	+28.3	106.0	69 18.4	+30.9	108.6	68 58.1	+32.3	111.1	68 35.4	+35.5	113.4	68 10.4	+37.6	115.7	67 43.3	+39.5	117.9	67 14.2	+41.4	120.0	31
32	70 17.3	+23.2	100.8	70 04.6	+26.1	103.5	69 49.3	+28.7	106.1	69 31.3	+31.0	108.7	69 02.6	+30.6	112.2	68 48.0	+35.9	113.6	68 22.8	+38.0	115.9	67 55.6	+39.9	118.1	32
33	70 40.5	+20.7	98.0	70 30.7	+23.6	100.8	70 18.0	+26.4	102.6	70 20.2	+27.1	104.6	69 44.5	+29.7	108.8	69 23.9	+34.1	111.4	69 00.8	+36.4	113.8	68 35.5	+38.4	116.1	33
34	71 01.2	+17.9	95.1	71 50.4	+21.0	98.0	72 16.4	+22.0	100.9	70 31.7	+24.3	102.9	70 30.0	+29.9	106.5	70 11.6	+32.5	109.2	69 50.7	+34.9	111.7	70 35.7	+39.0	121.7	34
35	71 19.1	+15.1	92.2	71 15.3	+18.2	95.1	71 08.4	+21.3	98.1	71 22.8	+21.7	98.1	71 12.8	+24.7	101.0	70 59.9	+27.6	103.9	70 44.1	+30.3	106.6	70 25.6	+32.9	109.3	35
36	71 34.2	+12.1	89.1	71 33.5	+15.4	92.1	71 29.7	+18.6	95.1	71 44.5	+18.3	98.1	71 37.5	+20.0	101.1	71 2									

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 23° , 337°

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.
	Hc	d	Z																						
0	46 30.0	-53.8	145.4	45 40.4	-54.1	146.0	44 50.5	-54.5	146.6	44 00.3	-54.8	147.1	43 09.7	-55.1	147.6	42 18.9	-55.4	148.1	41 27.9	-55.7	148.6	40 36.5	-55.9	149.0	0
1	45 36.2	-54.0	146.1	44 46.3	-54.4	146.6	43 56.0	-54.7	147.1	43 05.5	-55.0	147.7	42 14.6	-55.2	148.1	41 23.5	-55.5	148.6	40 32.2	-55.8	149.1	39 40.6	-56.1	149.5	1
2	44 42.2	-54.2	146.7	43 51.9	-54.5	147.2	43 01.3	-54.8	147.7	42 10.5	-55.1	148.2	41 19.4	-55.4	148.7	40 28.0	-55.7	149.1	39 36.4	-55.9	149.5	38 44.5	-56.1	150.0	2
3	43 48.0	-54.3	147.3	42 57.4	-54.7	147.8	42 06.5	-54.9	148.3	41 15.4	-55.3	148.7	40 24.0	-55.6	149.2	39 32.3	-55.8	149.6	38 40.5	-56.1	150.0	37 48.4	-56.3	150.4	3
4	42 53.7	-54.5	147.9	42 02.7	-54.8	148.3	41 11.6	-55.2	148.8	40 20.1	-55.4	149.2	39 28.4	-55.6	149.7	38 36.5	-55.9	150.1	37 44.4	-56.1	150.5	36 52.1	-56.3	150.8	4
5	41 59.2	-54.7	148.4	41 07.9	-55.0	148.9	40 16.4	-55.2	149.3	39 24.7	-55.5	149.7	38 32.8	-55.8	150.2	37 40.6	-56.0	150.5	36 48.3	-56.2	150.9	35 55.8	-56.5	151.3	5
6	41 04.5	-54.9	149.0	40 12.9	-55.1	149.4	39 21.2	-55.4	149.8	38 29.2	-55.6	150.2	37 37.0	-55.9	150.6	36 44.6	-56.1	151.0	35 52.1	-56.4	151.3	34 59.3	-56.5	151.7	6
7	40 09.6	-55.0	149.5	39 17.8	-55.2	149.9	38 25.8	-55.5	150.3	37 33.6	-55.8	150.7	36 41.1	-55.9	151.1	35 48.5	-56.2	151.4	34 55.7	-56.4	151.8	34 02.8	-56.6	152.1	7
8	39 14.6	-55.1	150.0	38 22.6	-55.4	150.4	37 30.3	-55.6	150.8	36 37.8	-55.8	151.2	35 45.2	-56.1	151.5	34 52.3	-56.3	151.9	33 59.3	-56.4	152.2	33 06.2	-56.7	152.5	8
9	38 19.5	-55.2	150.5	37 27.2	-55.5	150.9	36 34.7	-55.8	151.3	35 42.0	-56.0	151.6	34 49.1	-56.2	152.0	33 56.0	-56.3	152.3	33 02.9	-56.6	152.6	32 09.5	-56.7	152.9	9
10	37 24.3	-55.4	151.0	36 31.7	-55.6	151.4	35 38.9	-55.8	151.7	34 46.0	-56.0	152.1	33 52.9	-56.2	152.4	32 59.7	-56.5	152.7	32 06.3	-56.6	153.0	31 12.8	-56.8	153.3	10
11	36 28.9	-55.5	151.5	35 36.1	-55.7	151.9	34 43.1	-55.9	152.2	33 50.0	-56.2	152.5	32 56.7	-56.4	152.8	32 03.2	-56.5	153.1	31 09.7	-56.8	153.4	30 16.0	-56.9	153.6	11
12	35 33.4	-55.6	152.0	34 40.4	-55.8	152.3	33 47.2	-56.0	152.6	32 53.8	-56.2	152.9	32 00.3	-56.4	153.2	31 06.7	-56.6	153.5	30 12.9	-56.7	153.8	29 19.1	-57.0	154.0	12
13	34 37.8	-55.7	152.4	33 44.6	-55.9	152.8	32 51.2	-56.2	153.1	31 57.6	-56.3	153.3	31 03.9	-56.5	153.6	30 10.1	-56.7	153.9	29 16.2	-56.9	154.1	28 22.1	-57.0	154.4	13
14	33 42.1	-55.7	152.9	32 48.7	-56.0	153.2	31 55.0	-56.1	153.5	31 01.3	-56.4	153.7	30 07.4	-56.5	154.0	29 13.4	-56.7	154.3	28 19.3	-56.8	154.5	27 25.1	-57.0	154.7	14
15	32 46.4	-55.9	153.3	31 52.7	-56.1	153.6	30 58.9	-56.3	153.9	30 04.9	-56.4	154.1	29 10.9	-56.6	154.4	28 16.7	-56.8	154.6	27 22.5	-57.0	154.8	26 28.1	-57.1	155.1	15
16	31 50.5	-56.0	153.8	30 56.6	-56.2	154.0	30 02.6	-56.3	154.3	29 08.5	-56.5	154.5	28 14.3	-56.7	154.8	27 19.9	-56.8	155.0	26 25.5	-57.0	155.2	25 31.0	-57.1	155.4	16
17	30 54.5	-56.0	154.2	30 00.4	-56.2	154.4	29 06.3	-56.4	154.7	28 12.0	-56.6	154.9	27 17.6	-56.7	155.1	26 23.1	-56.9	155.3	25 28.5	-57.0	155.5	24 33.9	-57.2	155.7	17
18	29 58.5	-56.1	154.6	29 04.2	-56.3	154.8	28 09.9	-56.5	155.1	27 15.4	-56.6	155.3	26 20.9	-56.8	155.5	25 26.2	-56.9	155.7	24 31.5	-57.1	155.9	23 36.7	-57.2	156.1	18
19	29 02.4	-56.2	155.0	28 07.9	-56.3	155.2	27 13.4	-56.5	155.5	26 18.8	-56.7	155.7	25 24.1	-56.9	155.9	24 29.3	-57.0	156.0	23 34.4	-57.1	156.2	22 39.5	-57.3	156.4	19
20	28 06.2	-56.3	155.4	27 11.6	-56.5	155.6	26 16.9	-56.6	155.8	25 22.1	-56.8	156.0	24 27.2	-56.9	156.2	23 32.3	-57.1	156.4	22 37.3	-57.2	156.6	21 42.2	-57.3	156.7	20
21	27 09.9	-56.3	155.8	26 15.1	-56.4	156.0	25 20.3	-56.7	156.2	24 25.5	-56.7	156.4	23 30.3	-56.9	156.6	22 35.2	-57.0	156.7	21 40.1	-57.2	156.9	20 44.9	-57.4	157.0	21
22	26 13.6	-56.4	156.2	25 18.7	-56.6	156.4	24 23.6	-56.7	156.6	23 28.6	-56.9	156.7	22 33.4	-57.0	156.9	21 38.2	-57.1	157.1	20 42.9	-57.3	157.2	19 47.5	-57.3	157.4	22
23	25 17.2	-56.4	156.6	24 22.1	-56.6	156.7	23 26.9	-56.7	156.9	22 31.7	-56.9	157.1	21 36.4	-57.0	157.2	20 41.1	-57.2	157.4	19 45.6	-57.2	157.5	18 50.2	-57.4	157.7	23
24	24 20.8	-56.5	156.9	23 25.5	-56.6	157.1	22 30.2	-56.8	157.3	21 34.8	-56.9	157.4	20 39.4	-57.1	157.6	19 43.9	-57.2	157.7	18 48.4	-57.3	157.8	17 52.8	-57.5	158.0	24
25	23 24.3	-56.6	157.3	22 28.9	-56.7	157.5	21 33.4	-56.8	157.6	20 37.9	-57.0	157.8	19 42.3	-57.0	157.9	18 46.7	-57.2	158.0	17 51.1	-57.4	158.2	16 55.3	-57.4	158.3	25
26	22 27.7	-56.6	157.7	21 32.2	-56.8	157.8	20 36.6	-56.9	158.0	19 40.9	-57.0	158.1	18 45.3	-57.2	158.2	17 49.5	-57.2	158.4	16 53.7	-57.5	158.5	15 57.9	-57.5	158.6	26
27	21 31.1	-56.6	158.0	20 35.4	-56.7	158.2	19 39.7	-56.9	158.3	18 43.9	-57.0	158.4	17 48.1	-57.1	158.6	16 52.3	-57.3	158.7	15 56.4	-57.4	158.8	14 00.4	-57.5	158.9	27
28	20 34.5	-56.7	158.4	19 38.7	-56.8	158.5	18 42.8	-56.9	158.6	17 46.9	-57.1	158.8	16 51.0	-57.2	158.9	15 55.0	-57.3	159.0	14 59.0	-57.5	159.1	14 02.9	-57.5	159.2	28
29	19 37.8	-56.7	158.7	18 41.9	-56.8	158.9	17 45.9	-57.0	159.0	16 49.8	-57.0	159.1	15 53.8	-57.2	159.2	14 57.7	-57.3	159.3	14 01.5	-57.4	159.4	13 05.4	-57.6	159.5	29
30	18 41.1	-56.8	159.1	17 45.0	-56.9	159.2	16 48.9	-57.0	159.3	15 52.8	-57.2	159.4	14 56.6	-57.3	159.5	14 00.4	-57.4	159.6	13 04.1	-57.5	159.7	12 07.8	-57.5	159.8	30
31	17 44.3	-56.8	159.4	16 48.1	-56.9	159.5	15 51.9	-57.0	159.6	14 55.6	-57.1	159.7	13 59.3	-57.2	159.8	13 03.0	-57.4	159.9	12 06.6	-57.4	160.0	11 10.3	-57.6	160.0	31
32	16 47.5	-56.8	159.8	15 51.2	-56.9	159.9	14 54.9	-57.1	159.9	13 58.5	-57.2	160.0	13 02.1	-57.3	160.1	12 05.6	-57.4	160.2	11 09.2	-57.5	160.3	10 12.7	-57.6	160.3	32
33	15 50.7	-56.9	160.1	14 54.3	-57.0	160.2	13 57.8	-57.1	160.3	13 01.3	-57.2	160.3	12 04.8	-57.3	160.4	11 08.2	-57.4	160.5	10 11.7	-57.5	160.6	9 15.1	-57.6	160.6	33
34	14 53.8	-56.9	160.4	13 47.1	-57.1	160.5	13 00.7	-57.2	160.6	12 06.9	-57.2	160.7	11 10.2	-57.4	161.0	10 10.2	-57.4	161.1	9 18.6	-57.5	161.1	7 19.9	-57.7	161.2	35
35	13 56.9	-57.0	160.7	12 03.3	-57.1	161.1	11 06.5	-57.2	161.2	10 09.7	-57.3	161.3	9 12.8	-57.3	161.3	8 16.0	-57.5	161.4	7 19.1	-57.6	161.4	6 22.2	-57.6	161.5	36
36	12 00.0	-56.9	161.1	11 06.2	-57.1	161.5	10 09.3	-57.1	161.5	9 12.4	-57.3	161.6	8 15.5	-57.4	161.6	7 18.5	-57.4	161.7							

24°, 336° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.										
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z											
0	46 02.7 +53.1	144.1	45 13.9 +53.5	144.7	44 24.7 +53.9	145.3	43 35.2 +54.3	145.8	42 45.4 +54.6	146.4	41 55.4 +54.9	146.9	41 05.0 +55.2	147.3	40 14.3 +55.5	147.8	0	46 55.8 +52.8	143.5	46 07.4 +53.3	144.1	45 18.6 +53.7	144.7	44 29.5 +54.1	145.2	43 40.0 +54.5	145.8	42 50.3 +54.7	146.3	42 00.2 +55.1	146.8	41 09.8 +55.4	147.3	1	
1	47 48.6 +52.6	142.8	47 00.7 +53.0	143.4	46 12.3 +53.5	144.0	45 23.6 +53.8	144.6	44 34.5 +54.2	145.2	43 45.0 +54.6	145.8	42 55.3 +54.9	146.3	42 05.2 +55.3	146.8	42 53.0 +51.3	139.7	50 31.2 +51.9	140.5	49 44.7 +52.4	141.2	48 57.7 +52.9	142.0	48 10.2 +53.3	142.7	47 22.3 +53.7	143.3	46 33.9 +54.2	144.0	45 45.2 +54.6	144.6	5		
2	48 41.2 +52.4	142.0	47 53.7 +52.8	142.7	47 05.8 +53.2	143.4	46 17.4 +53.7	144.0	45 28.7 +54.0	144.6	44 39.6 +54.4	145.2	43 50.2 +54.8	145.7	43 00.5 +55.0	146.3	43 55.5 +55.0	145.7	49 33.6 +52.0	141.3	48 46.5 +52.5	142.0	47 59.0 +53.0	142.7	46 22.7 +53.9	143.3	45 34.0 +54.2	144.6	44 45.0 +54.5	145.2	43 55.5 +55.0	145.7	4		
3	50 25.6 +51.7	140.5	49 39.0 +52.2	141.3	48 52.0 +52.7	142.0	48 04.5 +53.2	142.7	47 16.6 +53.6	143.3	46 28.2 +54.1	144.0	45 39.5 +54.4	144.6	44 50.5 +54.7	145.1	45 17.3 +51.3	139.7	51 23.1 +51.6	139.7	50 37.1 +52.1	140.5	49 50.6 +52.6	141.2	48 03.5 +53.1	142.0	48 16.0 +53.6	142.7	47 28.1 +54.0	143.3	46 39.8 +54.4	144.0	7		
4	52 08.6 +51.0	138.9	52 14.7 +51.2	138.9	51 29.2 +51.8	138.7	50 43.2 +52.3	140.5	49 56.6 +52.9	141.3	49 09.6 +53.3	142.0	50 20.9 +53.5	142.5	49 15.9 +53.5	142.0	48 22.1 +53.8	142.7	47 34.2 +54.1	143.3	46 59.6 +50.6	138.0	52 21.0 +51.4	138.9	51 35.5 +52.0	139.7	50 49.5 +52.5	140.5	50 02.9 +53.4	141.3	49 15.9 +53.5	142.0	48 28.3 +54.0	142.7	9
5	53 50.2 +50.1	137.1	53 05.9 +50.8	138.0	52 21.0 +51.4	138.9	51 35.5 +52.0	139.7	50 27.5 +51.7	138.9	51 42.0 +52.2	140.5	50 55.9 +52.8	141.3	50 09.4 +53.2	141.3	49 22.3 +53.7	142.0	51 17.3 +51.3	139.7	50 31.2 +51.9	140.5	49 44.7 +52.4	141.2	48 57.7 +52.9	142.0	48 10.2 +53.3	142.7	47 22.3 +53.7	143.3	46 33.9 +54.2	144.0	5		
6	54 40.3 +49.7	136.2	53 56.7 +50.4	137.1	53 12.4 +51.1	138.0	52 27.5 +51.7	138.9	51 42.0 +52.2	140.5	50 55.9 +52.8	141.3	50 09.4 +53.2	141.3	49 22.3 +53.7	142.0	51 17.3 +51.3	139.7	50 31.2 +51.9	140.5	49 44.7 +52.4	141.2	48 57.7 +52.9	142.0	48 10.2 +53.3	142.7	47 22.3 +53.7	143.3	46 33.9 +54.2	144.0	6				
7	55 30.0 +49.2	135.2	54 47.1 +50.0	136.2	53 04.5 +50.6	137.1	53 19.2 +51.2	138.1	52 34.2 +51.9	138.9	51 48.7 +52.4	139.8	51 02.6 +53.0	140.6	50 16.0 +53.5	141.3	51 19.2 +48.7	134.2	53 37.1 +49.4	135.2	54 54.1 +50.2	136.2	53 10.4 +50.9	137.2	52 26.1 +51.5	138.1	51 41.1 +52.1	139.0	51 55.6 +52.6	139.8	51 09.5 +53.1	140.6	7		
8	56 19.2 +48.7	134.2	55 37.1 +49.4	135.2	54 54.1 +50.2	136.2	53 20.4 +50.9	137.2	52 34.2 +51.5	138.1	51 41.1 +52.1	139.0	51 55.6 +52.6	139.8	51 02.6 +53.0	140.6	50 16.0 +53.5	141.3	51 46.5 +43.7	125.6	52 21.0 +44.9	127.1	50 34.2 +46.0	128.5	51 56.3 +47.1	129.8	50 08.7 +50.7	136.3	54 25.0 +51.4	137.3	53 40.6 +52.0	138.2	52 55.5 +52.6	139.1	14
9	57 43.6 +46.9	130.8	58 03.9 +47.8	132.0	57 23.3 +48.6	133.2	56 41.8 +49.5	134.3	55 59.4 +50.3	135.4	55 16.4 +50.9	136.4	54 32.6 +51.6	137.4	53 48.1 +52.2	138.3	55 30.5 +46.1	129.6	58 51.7 +47.1	130.9	57 31.3 +48.9	133.3	56 49.7 +49.8	134.4	56 07.3 +50.5	135.5	55 24.2 +51.2	136.5	54 40.3 +51.9	137.5	16				
10	59 30.5 +46.1	129.6	58 51.7 +47.1	130.9	58 11.9 +48.1	132.1	57 31.3 +48.9	133.3	56 49.7 +49.8	134.4	56 07.3 +50.5	135.5	55 24.2 +51.2	136.5	54 30.5 +46.1	129.6	59 00.0 +47.5	131.0	58 20.2 +48.4	132.2	57 39.5 +49.2	133.4	56 57.8 +50.1	134.5	56 15.4 +50.8	135.6	55 32.2 +51.5	136.6	17						
11	60 16.6 +45.4	128.3	59 38.8 +46.5	129.7	59 00.0 +47.5	131.0	58 20.2 +48.4	132.2	57 39.5 +49.2	133.4	56 57.8 +50.1	134.5	56 15.4 +50.8	135.6	55 32.2 +51.5	136.6	59 02.0 +44.5	127.0	60 25.3 +45.7	128.4	59 47.5 +46.7	129.8	58 28.7 +48.7	132.3	57 47.9 +49.5	133.5	57 06.2 +50.3	134.6	56 23.7 +51.0	135.7	18				
12	61 46.5 +43.7	125.6	62 11.0 +44.9	127.1	60 34.2 +46.0	128.5	59 56.3 +47.1	129.8	59 17.4 +48.0	131.1	58 37.4 +48.4	132.4	57 56.5 +49.8	133.6	57 14.7 +50.6	134.7	61 11.0 +44.9	127.1	60 34.2 +46.0	128.5	59 56.3 +47.1	129.8	59 17.4 +48.0	131.1	58 37.4 +48.4	132.4	57 56.5 +49.8	133.6	19						
13	62 30.2 +42.7	124.1	61 55.9 +44.0	125.7	61 20.2 +45.2	127.2	60 43.4 +46.3	128.6	60 05.4 +47.4	130.0	59 26.3 +48.4	131.3	58 46.3 +49.2	132.5	58 05.3 +50.1	133.7	62 12.9 +41.4	122.6	62 39.9 +43.0	124.2	62 05.4 +44.4	125.8	60 52.8 +46.6	128.7	60 14.7 +47.7	130.1	59 35.5 +48.7	131.4	58 55.4 +49.5	132.6	21				
14	63 54.5 +40.5	121.0	63 22.9 +42.0	122.7	62 49.8 +43.4	124.3	62 15.3 +44.6	125.9	61 39.4 +45.9	127.4	61 02.4 +47.0	128.8	60 24.2 +48.0	130.2	59 44.9 +49.0	131.5	62 22.2 +47.6	129.2	61 22.2 +47.6	129.2	61 22.2 +47.6	129.2	61 22.2 +47.6	129.2	61 22.2 +47.6	129.2	61 22.2 +47.6	129.2	24						
15	65 52.2 +36.6	115.6	65 25.4 +38.3	117.6	64 56.7 +40.0	119.5	64 26.3 +41.6	121.3	63 54.4 +43.0	123.1	63 20.9 +44.4	124.7	62 46.0 +45.7	126.3	62 09.8 +46.9	127.9	66 28.8 +34.9	113.6	66 03.7 +36.9	115.7	65 36.7 +38.7	117.7	65 07.9 +40.4	119.6	64 37.4 +42.0	121.5	64 05.3 +43.5	123.2	63 31.7 +44.8	124.9	62 56.7 +46.1	126.5	26		
16	67 03.7 +33.3	111.6	66 40.6 +35.3	113.7	65 15.4 +37.3	115.8	65 48.3 +39.1	117.8	65 19.4 +40.8	119.8	64 48.8 +42.3	121.6	64 16.5 +43.9	123.4	63 42.8 +45.1	125.1	67 37.0 +31.5	109.4	67 15.9 +33.7	111.7	66 52.7 +35.7	113.9	66 27.4 +37.7	116.0	66 00.2 +39.5	118.0	65 31.1 +41.2	119.9	65 00.4 +42.7	121.8	64 27.9 +44.2	123.6	28		
17	68 38.0 +27.5	104.8	68 21.4 +30.0	107.2	68 02.5 +32.2	109.6	67 41.2 +34.4	111.9	67 17.7 +36.5	114.1	66 52.2 +38.4	116.3	66 24.6 +40.3	118.3	65 55.3 +41.9	120.3	69 05.9 +25.2	102.3	68 51.4 +27.8	104.9	68 34.7 +30.3	107.3	68 10.9 +34.0	109.7	67 50.7 +32.0	107.4	67 30.6 +37.0	114.3	67 04.9 +38.9	116.5	66 37.2 +40.7	118.5	31		
18	69 30.7 +22.9	99.8	69 19.2 +25.6	102.4	69 05.0 +28.2	104.9	68 48.3 +30.7	107.4	68 29.1 +31.1	109.9	68 07.6 +35.6	112.2	67 43.8 +35.2	112.2	67 43.8 +37.3	114.5	67 17.9 +39.3	116.7	69 30.7 +22.9	99.8	69 19.2 +25.6	102.4	69 05.0 +28.2	104.9	68 29.1 +31.1	107.4	68 07.6 +35.6	112.2	67 43.8 +35.2	112.2	67 43.8 +35.2	112.2	32		
19	69 53.6 +20.5	97.1	69 44.8 +23.0	99.8	69 33.2 +26.0	102.4	69 19.0 +28.6	105.0	69 02.2 +31.1	107.6	68 42.8 +33.5	110.0	68 21.1 +35.7	112.4	67 57.2 +35.1	112.4	67 00.8 +25.0	100.1	70 08.4 +17.8	97.1	71 14.7 +3.2	95.9	71 30.6 +9.7	85.3	71 33.9 +12.9	88.3	71 34.1 +16.1	91.3	71 31.1 +19.3	94.3	71 25.0 +22.5	97.3	71 15.9 +25.4	100.2	39
20	71 17.9 +0.1	76.3	71 30.6 +3.3	79.3	71 40.3 +6.5	82.2	71 46.8 +9.9	85.2	71 50.2 +13.2	88.3	71 50.4 +16.5	91.3	71 47.5 +19.6	94.4	71 41.3 +22.8	97.4	71 17.9 +15.0	91.5	70 28.8 +18.1	94.3	70 22.8 +21.1	97.1	70 14.0 +23.9	99.9	70 02.3 +26.7	102.6	69 47.8 +29.4	105.3	69 30.7 +31.9	107.8	69 11.1 +34.3	110.3	35		
21	71 18.0 -2.9	73.2	71 33.9 +0.2	76.1	71 46.8 +3.4	79.0	71 56.7 +6.7	82.1	72 03.4 +10.0	85.1	72 06.9 +13.3	88.2	72 07.1 +16.7	91.3	72 04.1 +20.0	94.4	71 18.0 -2.9	73.2	70 47.8 -17.2	73.2	70 37.9 +21.4	70.7	70 29.0 +24.3	100.0	70 17.2 +27.1	102.7	70 02.6 +29.8	105.4	69 45.4 +32.3	108.0	36				
22	71 15.1 -6.1	70.1	71 34.1 -3.0	72.9	71 50.2																														

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 24°, 336°

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.	
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		
0	46 02.7 -53.3	144.1	45 13.9 -53.7	144.7	44 24.7 -54.1	145.3	43 35.2 -54.4	145.8	42 45.4 -54.7	146.4	41 55.4 -55.1	146.9	41 05.0 -55.4	147.3	40 14.3 -55.6	147.8	39 18.7 -55.8	148.3	39 30.0 -55.6	150.1	35 35.0 -56.2	150.1	35 35.0 -56.2	150.1	0	
1	45 09.4 -53.6	144.8	44 20.2 -54.0	145.3	43 30.6 -54.2	145.9	42 40.8 -54.6	146.4	41 50.7 -54.9	146.9	41 00.3 -55.2	147.4	40 09.6 -55.5	147.9	39 14.1 -55.6	148.3	38 22.9 -55.8	148.8	38 22.9 -55.8	148.8	2	39 18.7 -55.8	148.3	39 30.0 -55.6	150.5	1
2	44 15.8 -53.7	145.4	43 26.2 -54.1	146.0	42 36.4 -54.5	146.5	41 46.2 -54.7	147.0	40 55.8 -55.1	147.5	40 05.1 -55.4	147.9	39 14.1 -55.6	148.3	38 22.9 -55.8	148.8	38 22.9 -55.8	148.8	2	38 22.9 -55.8	148.8	38 22.9 -55.8	148.8	2		
3	43 22.1 -54.0	146.0	42 32.1 -54.2	146.5	41 41.9 -54.6	147.0	40 51.5 -55.0	147.5	40 00.7 -55.2	148.0	39 05.5 -55.3	148.5	38 14.3 -55.6	148.9	37 22.8 -55.9	149.3	36 31.1 -56.1	149.7	36 31.1 -56.1	149.7	4	37 22.8 -55.9	149.3	36 31.1 -56.1	149.7	4
4	42 28.1 -54.1	146.6	41 37.9 -54.5	147.1	40 47.3 -54.7	147.6	39 56.5 -55.0	148.0	38 10.2 -55.5	149.0	37 18.7 -55.7	149.4	36 26.9 -55.4	149.8	35 35.0 -56.2	150.1	35 35.0 -56.2	150.1	5	35 35.0 -56.2	150.1	35 35.0 -56.2	150.1	5		
5	41 34.0 -54.3	147.2	40 43.4 -54.6	147.7	39 52.6 -54.9	148.1	39 01.5 -55.2	148.6	38 10.2 -55.5	149.0	37 18.7 -55.7	149.4	36 26.9 -55.4	149.8	35 31.0 -56.0	150.2	34 38.8 -56.2	150.5	34 38.8 -56.2	150.5	6	34 38.8 -56.2	150.5	34 38.8 -56.2	150.5	6
6	40 39.7 -54.5	147.8	39 48.8 -54.8	148.2	38 57.7 -55.1	148.7	38 06.3 -55.3	149.1	37 14.7 -55.5	149.5	36 23.0 -55.8	149.8	35 31.0 -56.0	150.2	34 38.8 -56.2	150.5	34 38.8 -56.2	150.5	7	34 38.8 -56.2	150.5	34 38.8 -56.2	150.5	7		
7	39 45.2 -54.6	148.3	38 54.0 -54.9	148.8	38 02.6 -55.1	149.2	37 11.0 -55.4	149.6	36 19.2 -55.7	149.9	35 27.2 -55.9	150.3	34 35.0 -56.2	150.6	33 42.6 -56.4	151.0	33 42.6 -56.4	151.0	8	33 42.6 -56.4	151.0	33 42.6 -56.4	151.0	8		
8	38 50.6 -54.7	148.9	37 59.1 -55.0	149.3	37 07.5 -55.3	149.7	36 15.6 -55.6	150.0	35 23.5 -55.8	150.4	34 31.3 -56.0	150.7	33 38.8 -56.2	151.1	32 46.2 -56.4	151.4	32 46.2 -56.4	151.4	9	32 46.2 -56.4	151.4	32 46.2 -56.4	151.4	9		
9	37 55.9 -54.9	149.4	37 04.1 -55.1	149.8	36 12.2 -55.4	150.1	35 20.0 -55.6	150.5	34 27.7 -55.8	150.8	33 35.3 -56.1	151.2	32 42.6 -56.3	151.5	31 49.8 -56.5	151.8	31 49.8 -56.5	151.8	9	31 49.8 -56.5	151.8	31 49.8 -56.5	151.8	9		
10	37 01.0 -55.1	149.9	36 09.0 -55.3	150.3	35 16.8 -55.5	150.6	34 24.4 -55.7	151.0	33 31.9 -56.0	151.3	32 39.2 -56.2	151.6	31 46.3 -56.4	151.9	30 53.3 -56.5	152.2	30 53.3 -56.5	152.2	10	30 53.3 -56.5	152.2	30 53.3 -56.5	152.2	10		
11	36 05.9 -55.1	150.4	35 13.7 -55.4	150.7	34 21.3 -55.7	151.1	33 28.7 -55.9	151.4	32 35.9 -56.0	151.7	31 43.0 -56.3	152.0	30 49.9 -56.4	152.3	29 56.8 -56.7	152.6	29 56.8 -56.7	152.6	11	29 56.8 -56.7	152.6	29 56.8 -56.7	152.6	11		
12	35 10.8 -55.2	150.9	34 18.3 -55.5	151.2	33 25.6 -55.7	151.5	32 32.8 -55.9	151.8	31 39.9 -56.2	152.1	30 46.7 -56.3	152.4	29 53.5 -56.5	152.7	29 00.1 -56.7	152.9	29 00.1 -56.7	152.9	12	29 00.1 -56.7	152.9	29 00.1 -56.7	152.9	12		
13	34 15.6 -55.4	151.3	33 22.8 -55.6	151.7	32 29.9 -55.8	152.0	31 36.9 -56.0	152.3	30 43.7 -56.2	152.5	29 50.4 -56.4	152.8	28 57.0 -56.6	153.1	28 03.4 -56.7	153.3	28 03.4 -56.7	153.3	13	28 03.4 -56.7	153.3	28 03.4 -56.7	153.3	13		
14	33 20.2 -55.5	151.8	32 27.2 -55.6	152.1	31 34.1 -55.8	152.4	30 40.9 -56.1	152.7	29 47.5 -56.3	153.0	28 54.0 -56.4	153.2	28 00.4 -56.6	153.4	27 06.7 -56.8	153.7	27 06.7 -56.8	153.7	14	27 06.7 -56.8	153.7	27 06.7 -56.8	153.7	14		
15	32 24.7 -55.5	152.3	31 31.6 -55.8	152.6	30 38.3 -56.0	152.8	29 44.8 -56.2	153.1	28 51.2 -56.3	153.3	27 57.6 -56.6	153.6	27 03.8 -56.7	153.8	26 09.9 -56.9	154.0	26 09.9 -56.9	154.0	15	26 09.9 -56.9	154.0	26 09.9 -56.9	154.0	15		
16	31 29.2 -55.7	152.7	30 35.8 -55.8	153.0	29 42.3 -56.1	153.2	28 48.6 -56.2	153.5	27 54.9 -56.4	153.7	27 01.0 -56.6	154.0	26 07.1 -56.8	154.2	25 13.0 -56.9	154.4	25 13.0 -56.9	154.4	16	25 13.0 -56.9	154.4	25 13.0 -56.9	154.4	16		
17	30 33.5 -55.7	153.1	29 40.0 -56.0	153.4	28 46.2 -56.1	153.7	27 52.4 -56.3	153.9	26 58.5 -56.5	154.1	26 04.4 -56.6	154.3	25 10.3 -56.8	154.5	24 16.1 -57.0	154.7	24 16.1 -57.0	154.7	17	24 16.1 -57.0	154.7	24 16.1 -57.0	154.7	17		
18	29 37.8 -55.8	153.6	28 44.0 -56.0	153.8	27 50.1 -56.2	154.1	26 56.1 -56.3	154.3	26 02.0 -56.5	154.5	25 07.8 -56.7	154.7	24 13.5 -56.8	154.9	23 19.1 -57.0	155.1	23 19.1 -57.0	155.1	18	23 19.1 -57.0	155.1	23 19.1 -57.0	155.1	18		
19	28 42.0 -55.9	154.0	27 48.0 -56.1	154.2	26 53.9 -56.2	154.5	25 59.8 -56.5	154.7	25 05.5 -56.6	154.9	24 11.1 -56.7	155.1	23 22.1 -56.7	155.3	22 22.1 -56.7	155.4	22 22.1 -56.7	155.4	19	22 22.1 -56.7	155.4	22 22.1 -56.7	155.4	19		
20	27 46.1 -55.9	154.4	26 51.9 -56.1	154.6	25 57.7 -56.3	154.8	25 03.3 -56.4	155.0	24 08.9 -56.6	155.2	23 14.4 -56.8	155.4	22 19.8 -57.0	155.6	21 25.1 -57.1	155.8	21 25.1 -57.1	155.8	20	21 25.1 -57.1	155.8	21 25.1 -57.1	155.8	20		
21	26 50.2 -56.1	154.8	25 55.8 -56.2	155.0	25 01.4 -56.4	155.2	24 06.9 -56.6	155.4	23 12.3 -56.7	155.6	22 17.6 -56.9	155.8	21 22.8 -57.0	155.9	20 28.0 -57.1	156.1	20 28.0 -57.1	156.1	21	20 28.0 -57.1	156.1	20 28.0 -57.1	156.1	21		
22	25 54.1 -56.1	155.2	24 59.6 -56.3	155.4	24 05.0 -56.4	155.6	23 10.3 -56.6	155.8	22 15.6 -56.8	156.0	21 20.7 -56.8	156.1	20 25.8 -57.0	156.3	19 30.9 -57.2	156.4	19 30.9 -57.2	156.4	22	19 30.9 -57.2	156.4	19 30.9 -57.2	156.4	22		
23	24 58.0 -56.1	155.6	24 03.3 -56.3	155.8	23 08.6 -56.5	156.0	22 13.7 -56.6	156.1	21 18.8 -56.7	156.3	20 23.9 -57.0	156.5	19 28.8 -57.0	156.6	18 33.7 -57.2	156.7	18 33.7 -57.2	156.7	23	18 33.7 -57.2	156.7	18 33.7 -57.2	156.7	23		
24	24 01.9 -56.2	156.0	23 07.0 -56.3	156.2	22 12.1 -56.5	156.3	21 17.1 -56.7	156.5	20 17.1 -56.9	156.7	19 26.0 -57.1	156.9	18 52.5 -57.2	157.1	17 36.5 -57.2	157.2	17 36.5 -57.2	157.2	24	17 36.5 -57.2	157.2	17 36.5 -57.2	157.2	24		
25	23 05.7 -56.3	156.4	22 10.7 -56.5	156.5	21 15.6 -56.7	156.7	20 20.4 -56.7	156.8	19 25.2 -56.8	157.0	18 30.0 -57.0	157.1	17 34.7 -57.1	157.3	16 39.3 -57.2	157.4	16 39.3 -57.2	157.4	25	16 39.3 -57.2	157.4	16 39.3 -57.2	157.4	25		
26	22 09.4 -56.3	156.8	21 14.2 -56.4	157.1	20 19.0 -56.6	157.1	19 23.7 -56.7	157.2	18 28.4 -56.9	157.3	17 33.0 -57.0	157.5	16 37.6 -57.2	157.6	15 42.1 -57.3	157.7	15 42.1 -57.3	157.7	26	15 42.1 -57.3	157.7	15 42.1 -57.3	157.7	26		
27	21 13.1 -56.4	157.1	20 17.8 -56.5	157.3	19 22.4 -56.7	157.4	18 27.0 -56.8	157.5	17 31.5 -56.9	157.7	16 36.0 -57.1	157.8	15 40.4 -57.2	157.9	14 44.8 -57.3	158.0	14 44.8 -57.3	158.0	27	14 44.8 -57.3	158.0	14 44.8 -57.3	158.0	27		
28	20 16.7 -56.4	157.5	19 21.3 -56.6	157.6	18 25.7 -56.6	157.8	17 30.2 -56.8	157.9	16 34.6 -57.0	158.0	15 38.9 -57.0	158.1	14 43.2 -57.2	158.2	13 47.5 -57.3	158.3	13 47.5 -57.3	158.3	28	13 47.5 -57.3	158.3	13 47.5 -57.3	158.3	28		
29	19 23.8 -56.4	158.2	18 28.1 -56.6	158.3	17 32.3 -56.7	158.4	16 36.5 -56.9	158.5	15 40.6 -57.0	158.6	14 44.7 -57.1	158.7	13 48.8 -57.2	158.8	11 52.8 -57.3	158.9	11 52.8 -57.3	158.9	30	11 52.8 -57.3	158.9	11 52.8 -57.3	158.9	30		

25°, 335° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	38°			39°			40°			41°			42°			43°			44°			45°			Dec.			
Dec.	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.			
0	45 34.6 +52.6 142.9	44 46.5 +53.1 143.5	43 58.2 +53.4 144.0	43 09.4 +53.9 144.6	42 20.3 +54.3 145.1	41 31.0 +54.5 145.6	40 41.3 +54.9 146.1	39 51.3 +55.2 146.6	0	45 55.1 +51.1 139.2	49 09.4 +51.7 139.9	48 23.2 +52.3 140.7	47 36.6 +52.7 141.4	46 49.5 +53.2 142.0	45 62.0 +53.6 142.7	44 15.1 +54.0 143.3	44 25.8 +54.4 143.9	45 14.1 +54.0 143.3	44 20.2 +54.3 143.3	46 55.6 +53.4 142.0	46 08.1 +53.9 142.7	45 20.2 +54.3 143.3	46 49.1 +53.1 140.0	0				
1	46 27.2 +52.4 142.2	45 39.6 +52.9 142.8	44 51.6 +53.3 143.4	44 03.3 +53.6 144.0	43 14.6 +54.0 144.5	42 25.5 +54.4 145.1	41 36.2 +54.7 145.6	40 46.5 +55.1 146.1	1	47 19.6 +52.1 141.5	46 32.5 +52.6 142.1	45 44.9 +53.0 142.8	44 56.9 +53.5 143.4	43 08.6 +53.9 143.9	43 19.9 +54.3 144.5	42 30.9 +54.6 145.0	41 41.6 +54.9 145.6	40 46.5 +55.1 146.1	41 36.5 +54.8 145.0	42 30.9 +54.6 145.0	41 41.6 +54.9 145.6	42 30.9 +54.6 145.0	43 31.3 +54.5 144.5	4				
2	48 11.7 +51.9 140.7	47 25.1 +52.3 141.4	46 37.9 +52.8 142.1	45 50.4 +53.2 142.7	45 02.5 +53.6 143.3	44 14.2 +54.0 143.9	43 25.5 +54.4 144.5	42 35.8 +54.8 145.0	2	49 03.6 +51.5 140.0	48 17.4 +52.0 140.7	47 30.7 +52.5 141.4	46 43.6 +53.0 142.0	45 56.1 +53.4 142.7	45 08.2 +53.8 143.3	44 19.9 +54.2 143.9	43 31.3 +54.5 144.5	42 35.8 +54.8 145.0	41 41.6 +54.9 145.6	40 46.5 +55.1 146.1	41 36.5 +54.8 145.0	42 30.9 +54.6 145.0	43 31.3 +54.5 144.5	4				
3	50 46.2 +50.9 138.3	50 01.1 +51.4 139.1	49 15.5 +51.9 139.9	48 29.3 +52.5 140.6	47 42.7 +53.0 141.3	46 55.6 +53.4 142.0	46 08.1 +53.9 142.7	45 20.2 +54.3 143.3	3	51 37.1 +50.4 137.5	50 52.5 +51.1 138.3	50 07.4 +51.7 139.1	49 21.8 +52.2 139.9	48 35.7 +52.6 140.6	47 49.0 +53.2 141.3	47 02.0 +53.5 142.0	46 14.5 +54.0 142.7	47 08.5 +53.7 142.0	48 27.5 +50.1 136.6	51 43.6 +50.7 137.5	50 59.1 +51.2 138.3	49 28.3 +52.4 139.9	48 42.2 +52.8 140.6	47 55.5 +53.4 141.4	47 08.5 +53.7 142.0	48 02.2 +53.6 141.4	9	
4	53 17.6 +49.6 135.7	52 34.3 +50.3 136.6	51 50.3 +51.0 137.5	50 05.8 +51.5 138.3	50 20.7 +52.1 139.1	49 35.0 +52.6 139.9	49 35.0 +52.6 140.7	48 24.9 +53.6 141.4	5	49 55.1 +51.1 139.2	49 09.4 +51.7 139.9	48 23.2 +52.3 140.7	47 36.6 +52.7 141.4	46 49.5 +53.2 142.0	46 02.0 +53.6 142.7	45 14.1 +54.0 143.3	44 25.8 +54.4 143.9	45 14.1 +54.0 143.3	44 25.8 +54.4 143.9	45 14.1 +54.0 143.3	44 25.8 +54.4 143.9	45 14.1 +54.0 143.3	44 25.8 +54.4 143.9	5				
5	56 44.9 +48.1 132.7	55 03.8 +48.9 133.8	54 21.9 +49.6 134.8	53 39.3 +50.3 135.8	52 55.9 +51.0 136.7	51 11.9 +51.7 137.6	51 27.3 +52.2 138.4	50 33.6 +52.7 140.6	6	55 33.0 +47.5 131.7	55 52.7 +48.4 132.8	55 11.5 +49.2 133.8	54 29.6 +49.9 134.8	53 46.9 +50.7 135.8	53 03.6 +51.2 136.7	52 19.5 +51.9 137.6	51 34.9 +52.5 138.5	50 42.2 +52.7 139.3	52 27.5 +50.1 136.6	51 43.6 +50.7 137.5	50 59.1 +51.2 138.3	49 35.0 +52.6 139.9	48 48.9 +53.1 140.7	47 08.5 +53.7 142.0	48 02.2 +53.6 141.4	9		
10	54 07.2 +49.1 134.8	53 24.6 +49.8 135.7	52 41.3 +50.5 136.6	51 57.3 +51.2 137.5	51 12.8 +51.7 138.4	50 27.6 +52.3 139.2	49 42.0 +52.8 139.9	48 55.8 +53.3 140.7	10	54 56.3 +48.6 133.8	54 14.4 +49.4 134.8	53 31.8 +50.1 135.7	52 48.5 +50.8 136.7	52 04.5 +51.4 137.5	51 19.9 +52.0 138.4	50 34.8 +52.5 139.2	49 49.1 +53.1 140.0	50 42.2 +52.7 139.3	51 37.1 +50.4 137.5	50 59.1 +51.2 138.3	49 35.0 +52.6 139.9	48 48.9 +53.1 140.7	47 08.5 +53.7 142.0	48 02.2 +53.6 141.4	10			
11	55 44.9 +48.1 132.7	55 03.8 +48.9 133.8	54 21.9 +49.6 134.8	53 39.3 +50.3 135.8	52 55.9 +51.0 136.7	51 11.9 +51.7 137.6	51 27.3 +52.2 138.4	50 33.6 +52.7 140.6	11	56 44.9 +48.1 132.7	56 1.1 +46.5 129.4	57 37.4 +47.5 130.7	56 57.9 +48.4 131.8	56 17.4 +49.3 132.9	55 36.2 +49.4 134.0	54 54.1 +50.7 135.0	54 11.2 +51.4 136.0	55 02.6 +51.0 135.1	56 44.9 +48.1 132.7	56 1.1 +46.5 129.4	57 37.4 +47.5 130.7	56 57.9 +48.4 131.8	56 17.4 +49.3 132.9	55 36.2 +49.4 134.0	54 54.1 +50.7 135.0	54 11.2 +51.4 136.0	11	
12	56 33.0 +47.5 131.7	55 52.7 +48.4 132.8	55 11.5 +49.2 133.8	54 29.6 +49.9 134.8	53 46.9 +50.7 135.8	53 03.6 +51.2 136.7	52 19.5 +51.9 137.6	51 34.9 +52.5 138.5	12	57 27.5 +50.1 136.6	57 14.1 +47.8 137.5	56 00.7 +48.7 132.8	55 19.5 +49.5 133.9	54 37.6 +50.1 134.9	53 54.8 +50.8 135.9	53 11.4 +51.5 136.8	52 27.4 +52.1 137.7	51 34.9 +52.5 138.5	50 42.2 +52.7 139.3	51 37.1 +50.4 137.5	50 59.1 +51.2 138.3	49 35.0 +52.6 139.9	48 48.9 +53.1 140.7	47 08.5 +53.7 142.0	48 02.2 +53.6 141.4	12		
13	57 20.5 +46.6 130.5	56 41.1 +47.8 131.7	56 00.7 +48.7 132.8	55 19.5 +49.5 133.9	54 37.6 +50.1 134.9	53 54.8 +50.8 135.9	53 11.4 +51.5 136.8	52 27.4 +52.1 137.7	13	58 07.4 +46.2 129.4	57 28.8 +47.2 130.6	56 49.4 +48.0 131.8	55 09.0 +48.9 132.9	54 27.7 +49.7 133.9	53 45.7 +50.5 135.0	54 02.9 +51.2 135.9	53 19.5 +51.7 136.9	52 27.4 +52.1 137.7	51 37.1 +50.4 137.5	50 59.1 +51.2 138.3	49 35.0 +52.6 139.9	48 48.9 +53.1 140.7	47 08.5 +53.7 142.0	48 02.2 +53.6 141.4	13			
14	58 53.6 +45.5 128.2	58 16.1 +46.5 129.4	57 37.4 +47.5 130.7	56 57.9 +48.4 131.8	56 17.4 +49.3 132.9	55 36.2 +49.4 134.0	54 54.1 +50.7 135.0	54 11.2 +51.4 136.0	14	59 39.1 +44.8 126.9	59 02.6 +45.8 128.2	58 24.9 +46.9 129.5	57 46.3 +47.8 130.7	56 06.7 +48.6 131.9	55 26.1 +49.5 133.0	55 44.8 +50.3 134.1	55 02.6 +51.0 135.1	56 33.0 +47.5 131.7	55 52.7 +48.4 132.8	55 11.5 +49.2 133.8	54 29.6 +49.9 134.8	53 46.9 +50.7 135.8	52 27.4 +52.1 137.7	51 34.9 +52.5 138.5	50 42.2 +52.7 139.3	51 37.1 +50.4 137.5	14	
15	59 61.7 +42.9 124.1	60 33.4 +44.2 125.6	59 57.9 +45.4 127.0	58 23.5 +46.4 128.4	57 12.8 +47.2 129.9	56 30.7 +48.4 131.2	55 54.1 +50.7 132.0	55 11.2 +51.4 133.0	15	59 55.1 +51.1 139.2	59 09.4 +51.7 139.9	58 23.2 +52.3 140.7	57 36.6 +52.7 141.4	56 02.0 +53.6 142.0	55 40.8 +54.0 142.7	55 19.9 +52.0 143.9	54 49.1 +53.1 140.0	56 44.9 +48.1 132.7	56 1.1 +46.5 129.4	57 37.4 +47.5 130.7	56 57.9 +48.4 131.8	55 11.2 +51.4 132.0	54 44.9 +48.1 132.7	55 1.1 +46.5 129.4	56 37.4 +47.5 130.7	55 57.9 +48.4 131.8	54 11.2 +51.4 132.0	15
16	59 55.1 +51.1 139.2	59 09.4 +51.7 139.9	58 23.2 +52.3 140.7	57 36.6 +52.7 141.4	56 02.0 +53.6 142.0	55 40.8 +54.0 142.7	55 19.9 +52.0 143.9	54 49.1 +53.1 140.0	16	59 53.6 +50.9 138.3	59 01.1 +51.7 139.1	58 21.8 +52.2 139.9	57 35.7 +52.6 140.6	56 02.0 +53.5 141.3	55 40.8 +54.0 142.0	55 19.9 +52.0 143.9	54 49.1 +53.1 140.0	55 53.6 +50.9 138.3	55 01.1 +51.7 139.1	58 21.8 +52.2 139.9	57 35.7 +52.6 140.6	56 02.0 +53.5 141.3	55 40.8 +54.0 142.0	55 19.9 +52.0 143.9	54 49.1 +53.1 140.0	16		
17	59 53.6 +50.9 138.3	59 01.1 +51.7 139.1	58 21.8 +52.2 139.9	57 35.7 +52.6 140.6	56 02.0 +53.5 141.3	55 40.8 +54.0 142.0	55 19.9 +52.0 143.9	54 49.1 +53.1 140.0	17	59 52.5 +50.8 137.5	59 00.6 +51.7 138.3	58 20.9 +52.3 139.1	57 34.9 +52.5 140.7	56 02.0 +53.4 141.3	55 40.8 +54.0 142.0	55 19.9 +52.0 143.9	54 49.1 +53.1 140.0	55 52.5 +50.8 137.5	55 00.6 +51.7 138.3	58 20.9 +52.3 139.1	57 34.9 +52.5 140.7	56 02.0 +53.4 141.3	55 40.8 +54.0 142.0	55 19.9 +52.0 143.9	54 49.1 +53.1 140.0	17		
18	59 52.5 +50.8 137.5	59 00.6 +51.7 138.3	58 20.9 +52.3 139.1	57 34.9 +52.5 140.7	56 02.0 +53.4 141.3	55 40.8 +54.0 142.0	55 19.9 +52.0 143.9	54 49.1 +53.1 140.0	18	59 51.4 +50.7 136.6	59 00.1 +51.7 137.4	58 20.4 +52.3 138.2	57 34.4 +52.5 140.8	56 02.0 +53.3 141.3	55 40.8 +54.0 142.0	55 19.9 +52.0 143.9	54 49.1 +53.1 140.0	55 51.4 +50.7 136.6	55 00.1 +51.7 137.4	58 20.4 +52.3 138.2	57 34.4 +52.5 140.8	56 02.0 +53.3 141.3	55 40.8 +54.0 142.0	55 19.9 +52.0 143.9	54 49.1 +53.1 140.0	18		
19	59 50.3 +50.6 135.7	59 00.1 +51.7 136.5	58 20.4 +52.3 137.3	57 34.3 +52.5 140.9	56 02.0 +53.3 141.4	55 40.8 +54.0 142.0	55 19.9 +52.0 143.9	54 49.1 +53.1 140.0	19	59 49.2 +50.5 134.6	59 00.0 +51.7 135.4	58 20.3 +52.3 136.2	57 34.2 +52.5 140.8	56 02.0 +53.2 141.3	55 40.8 +54.0 142.0	55 19.9 +52.0 143.9	54 49.1 +53.1 140.0	55 49.2 +50.5 134.6	55 00.0 +51.7 135.4	58 20.3 +52.3 136.2	57 34.2 +52.5 140.8	56 02.0 +53.2 141.3	55 40.8 +54.0 142.0	55 19.9 +52.0 143.9	54 49.1 +53.1 140.0	19		
20	59 48.1 +50.4 133.7	59 00.0 +51.7 134.5	58 20.2 +52.3 135.3	57 34.1 +52.5 140.7	56 02.0 +53.3 141.5	55 40.8 +54.0 142.0	55 19.9 +52.0 143.9	54 49.1 +53.1 140.0	20	59 47.0 +50.3 132.6	59 00.1 +51.7 133.4	58 20.3 +52.3 134.2	57 34.3 +52.5 140.6	56 02.0 +53.2 141.4	55 40.8 +54.0 142.0	55 19.9 +52.0 143.9	54 49.1 +53.1 140.0	55 47.0 +50.3 132.6	55 00.1 +51.7 133.4	58 20.3 +52.3 134.2	57 34.3 +52.5 140.6	56 02.0 +53.2 141.4	55 40.8 +54.0 142.0	55 19.9 +52.0 143.9	54 49.1 +53.1 140.0	20		
21	59 45.9 +50.2 131.6	59 00.1 +5																										

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 25° , 335°

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.									
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z										
0	45 34.6 -52.9	142.9	44 46.5 -53.3	143.5	43 58.2 -53.7	144.0	43 09.4 -54.0	144.6	42 20.3 -54.3	145.1	41 31.0 -54.8	145.6	40 41.3 -55.0	146.1	39 51.3 -55.3	146.6	0	45 34.6 -52.9	142.9	44 46.5 -53.3	143.5	43 58.2 -53.7	144.0	43 09.4 -54.0	144.6	42 20.3 -54.3	145.1	41 31.0 -54.8	145.6	40 41.3 -55.0	146.1	39 51.3 -55.3	146.6	0
1	44 41.7 -53.1	143.5	43 53.2 -53.5	144.1	43 04.5 -53.9	144.7	42 15.4 -54.3	145.2	41 26.0 -54.6	145.7	40 36.2 -54.8	146.2	39 46.3 -55.2	146.6	38 56.0 -55.4	147.1	1	44 41.7 -53.1	143.5	43 53.2 -53.5	144.1	43 04.5 -53.9	144.7	42 15.4 -54.3	145.2	41 26.0 -54.6	145.7	40 36.2 -54.8	146.2	39 46.3 -55.2	146.6	38 56.0 -55.4	147.1	1
2	43 48.6 -53.4	144.2	42 59.7 -53.7	144.7	42 10.6 -54.1	145.3	41 21.1 -54.4	145.8	40 31.4 -54.7	146.2	39 41.4 -55.0	146.7	38 51.1 -55.3	147.2	38 00.6 -55.6	147.6	2	43 48.6 -53.4	144.2	42 59.7 -53.7	144.7	42 10.6 -54.1	145.3	41 21.1 -54.4	145.8	40 31.4 -54.7	146.2	39 41.4 -55.0	146.7	38 51.1 -55.3	147.2	38 00.6 -55.6	147.6	2
3	42 55.2 -53.5	144.8	42 06.0 -53.9	145.3	40 22.3 -54.4	146.4	39 32.2 -54.7	146.9	38 41.8 -55.0	147.3	37 51.2 -55.3	147.7	37 05.5 -55.4	148.1	37 05.0 -55.7	148.1	3	42 01.7 -53.7	145.4	41 12.1 -54.0	145.9	40 22.3 -54.4	146.4	39 32.2 -54.7	146.9	38 41.8 -55.0	147.3	37 51.2 -55.3	147.7	37 00.4 -55.6	148.1	36 09.3 -55.8	148.5	4
4	41 08.0 -53.9	146.0	40 18.1 -54.3	146.5	39 27.9 -54.5	147.0	38 37.5 -54.9	147.4	37 46.8 -55.1	147.8	36 55.9 -55.4	148.2	36 04.8 -55.6	148.6	35 13.5 -55.9	149.0	5	41 08.0 -53.9	146.0	40 18.1 -54.3	146.5	39 27.9 -54.5	147.0	38 37.5 -54.9	147.4	37 46.8 -55.1	147.8	36 55.9 -55.4	148.2	36 04.8 -55.6	148.6	35 13.5 -55.9	149.0	5
6	40 14.1 -54.1	146.6	39 23.8 -54.4	147.1	38 33.4 -54.7	147.5	37 42.6 -54.9	147.9	36 51.7 -55.2	148.3	36 00.5 -55.5	148.7	35 09.2 -55.8	149.1	34 17.6 -56.0	149.4	6	40 14.1 -54.1	146.6	39 23.8 -54.4	147.1	38 33.4 -54.7	147.5	37 42.6 -54.9	147.9	36 51.7 -55.2	148.3	36 00.5 -55.5	148.7	35 09.2 -55.8	149.1	34 17.6 -56.0	149.4	6
7	39 20.0 -54.3	147.2	38 29.4 -54.5	147.6	37 38.7 -54.8	148.0	36 47.7 -55.1	148.4	35 56.5 -55.4	148.8	35 05.0 -55.6	149.2	34 13.4 -55.8	149.5	33 21.6 -56.0	149.9	7	39 20.0 -54.3	147.2	38 29.4 -54.5	147.6	37 38.7 -54.8	148.0	36 47.7 -55.1	148.4	35 56.5 -55.4	148.8	35 05.0 -55.6	149.2	34 13.4 -55.8	149.5	33 21.6 -56.0	149.9	7
8	38 25.7 -54.3	147.7	37 34.9 -54.7	148.1	36 43.9 -55.0	148.5	35 52.6 -55.2	148.9	35 01.1 -55.5	149.3	34 09.4 -55.7	149.6	33 17.6 -56.0	150.0	32 25.6 -56.2	150.3	8	38 25.7 -54.3	147.7	37 34.9 -54.7	148.1	36 43.9 -55.0	148.5	35 52.6 -55.2	148.9	35 01.1 -55.5	149.3	34 09.4 -55.7	149.6	33 17.6 -56.0	149.9	32 25.6 -56.2	150.3	8
9	37 31.4 -54.6	148.2	36 40.2 -54.8	148.6	35 48.9 -55.1	149.0	34 57.4 -55.4	149.4	34 05.6 -55.5	149.7	33 13.7 -55.8	150.1	32 21.6 -56.0	150.4	31 29.4 -56.2	150.7	9	37 31.4 -54.6	148.2	36 40.2 -54.8	148.6	35 48.9 -55.1	149.0	34 57.4 -55.4	149.4	34 05.6 -55.5	149.7	33 13.7 -55.8	150.1	32 21.6 -56.0	150.4	31 29.4 -56.2	150.7	9
10	36 36.8 -54.6	148.8	35 45.4 -54.9	149.1	34 53.8 -55.2	149.5	34 02.0 -55.4	149.9	33 10.1 -55.7	150.2	32 17.9 -55.9	150.5	31 25.6 -56.1	150.8	30 33.2 -56.3	151.1	10	36 36.8 -54.6	148.8	35 45.4 -54.9	149.1	34 53.8 -55.2	149.5	34 02.0 -55.4	149.9	33 10.1 -55.7	150.2	32 17.9 -55.9	150.5	31 25.6 -56.1	150.8	30 33.2 -56.3	151.1	10
11	35 42.2 -54.8	149.3	34 50.5 -55.0	149.6	33 58.6 -55.2	150.0	33 06.6 -55.5	150.3	32 14.4 -55.8	150.6	31 22.0 -55.9	150.9	30 29.5 -56.2	151.2	29 36.9 -56.4	151.5	11	35 42.2 -54.8	149.3	34 50.5 -55.0	149.6	33 58.6 -55.2	150.0	33 06.6 -55.5	150.3	32 14.4 -55.8	150.6	31 22.0 -55.9	150.9	30 29.5 -56.2	151.2	29 36.9 -56.4	151.5	11
12	34 47.4 -54.9	149.8	33 55.5 -55.2	150.1	33 03.4 -55.4	150.4	32 11.1 -55.6	150.8	31 18.6 -55.8	151.1	30 26.1 -56.1	151.4	29 33.3 -56.2	151.6	28 40.5 -56.5	152.3	12	34 47.4 -54.9	149.8	33 55.5 -55.2	150.1	33 03.4 -55.4	150.4	32 11.1 -55.6	150.8	31 18.6 -55.8	151.1	30 26.1 -56.1	151.4	29 33.3 -56.2	151.6	28 40.5 -56.5	152.3	12
13	33 52.5 -55.0	150.3	33 00.3 -55.2	150.6	32 08.0 -55.5	150.9	31 15.5 -55.8	151.2	30 22.8 -55.9	151.5	29 30.0 -56.1	151.8	28 37.1 -56.3	152.0	27 44.0 -56.5	152.3	13	33 52.5 -55.0	150.3	33 00.3 -55.2	150.6	32 08.0 -55.5	150.9	31 15.5 -55.8	151.2	30 22.8 -55.9	151.5	29 30.0 -56.1	151.8	28 37.1 -56.3	152.0	27 44.0 -56.5	152.3	13
14	32 57.5 -55.1	150.7	32 05.1 -55.4	151.1	31 12.5 -55.6	151.4	30 19.7 -55.7	151.6	29 26.9 -56.0	151.9	28 33.9 -56.2	152.2	27 40.8 -56.4	152.4	26 47.5 -56.5	152.7	14	32 57.5 -55.1	150.7	32 05.1 -55.4	151.1	31 12.5 -55.6	151.4	30 19.7 -55.7	151.6	29 26.9 -56.0	151.9	28 33.9 -56.2	152.2	27 40.8 -56.4	152.4	26 47.5 -56.5	152.7	14
15	32 02.4 -55.3	151.2	31 09.7 -55.5	151.5	30 16.9 -55.7	151.8	29 24.0 -55.9	152.1	28 30.9 -56.1	152.3	27 37.7 -56.3	152.6	26 44.4 -56.5	152.8	25 51.0 -56.7	153.0	15	32 02.4 -55.3	151.2	31 09.7 -55.5	151.5	30 16.9 -55.7	151.8	29 24.0 -55.9	152.1	28 30.9 -56.1	152.3	27 37.7 -56.3	152.6	26 44.4 -56.5	152.8	25 51.0 -56.7	153.0	15
16	31 07.1 -55.3	151.7	30 14.2 -55.5	152.0	29 21.2 -55.7	152.2	28 28.1 -56.0	152.5	27 34.8 -56.1	152.7	26 41.4 -56.3	153.0	25 47.9 -56.5	153.2	24 54.3 -56.6	153.4	16	31 07.1 -55.3	151.7	30 14.2 -55.5	152.0	29 21.2 -55.7	152.2	28 28.1 -56.0	152.5	27 34.8 -56.1	152.7	26 41.4 -56.3	153.0	25 47.9 -56.5	153.2	24 54.3 -56.6	153.4	16
17	30 11.8 -55.4	152.1	29 18.7 -55.6	152.4	28 25.5 -55.8	152.6	27 32.1 -56.0	152.9	26 38.7 -56.2	153.1	25 45.1 -56.4	153.3	24 51.4 -56.5	153.6	23 57.7 -56.8	153.8	17	30 11.8 -55.4	152.1	29 18.7 -55.6	152.4	28 25.5 -55.8	152.6	27 32.1 -56.0	152.9	26 38.7 -56.2	153.1	25 45.1 -56.4	153.3	24 51.4 -56.5	153.6	23 57.7 -56.8	153.8	17
18	29 16.4 -55.5	152.6	28 23.1 -55.7	152.8	27 29.7 -55.9	153.1	26 36.1 -56.1	153.3	25 42.5 -56.3	153.5	24 48.7 -56.4	153.7	23 54.9 -56.6	153.9	22 00.9 -56.7	154.1	18	29 16.4 -55.5	152.6	28 23.1 -55.7	152.8	27 29.7 -55.9	153.1	26 36.1 -56.1	153.3	25 42.5 -56.3	153.5	24 48.7 -56.4	153.7	23 54.9 -56.6	153.9	22 00.9 -56.7	154.1	18
19	28 20.9 -55.6	153.0	27 27.4 -55.8	153.2	26 33.8 -56.0	153.5	25 40.0 -56.1	153.7	24 46.2 -56.3	153.9	23 52.3 -56.5	154.1	22 58.3 -56.7	154.2	21 04.2 -57.0	154.5	19	28 20.9 -55.6	153.0	27 27.4 -55.8	153.2	26 33.8 -56.0	153.5	25 40.0 -56.1	153.7	24 46.2 -56.3	153.9	23 52.3 -56.5	154.1	21 04.2 -57.0	154.5	19		
20	27 25.3 -55.6	153.4	26 31.6 -55.8	153.6	25 37.8 -56.0	153.9	24 43.9 -56.2	154.1	23 49.9 -56.4	154.3	22 55.8 -56.6	154.5	21 01.6 -56.7	154.6	20 01.6 -57.0	154.8	20	27 25.3 -55.6	153.4	26 31.6 -55.8	153.6	25 37.8 -56.0	153.9	24 43.9 -56.2	154.1	23 49.9 -56.4	154.3	22 55.8 -56.6	154.5	21 01.6 -56.7	154.6	20 01.6 -57.0	154.8	20
21	26 29.7 -55.8	153.8	25 35.8 -55.9	154.0	20 00.8 -56.4	156.2	19 05.9 -56.5	156.3	18 10.9 -56.7	156.4	17 23.5 -56.9	156.6	16 20.8 -57.0	156.8	15 25.7 -57.1	156.8	21	26 29.7 -55.8	153.8	25 35.8 -55.9	154.0	20 00.8 -56.4	156.2	19 05.9 -56.5	156.3	18 10.9 -56.7	156.4	17 23.5 -56.9	156.6	16 20.8 -57.0	156.8	15 25.7 -57.1	156.8	21
22	25 33.9 -55.8	154.3	24 39.9 -56.0	154.5	23 45.7 -56.2	154.7	22 51.4 -56.3	154.8	21 57.1 -56.5	155.0	20 02.6 -56.6	155.2	19 08.2 -56																					

26°, 334° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	38°			39°			40°			41°			42°			43°			44°			45°			Dec.				
Dec.	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.				
0	45 05.6 +52.2	141.6	44 18.4 +52.6	142.2	43 30.8 +53.0	142.8	42 42.8 +53.5	143.4	41 54.5 +53.8	143.9	41 05.8 +54.2	144.4	40 16.9 +54.5	144.9	39 27.6 +54.9	145.4	0	0	0	0	0	0	0	0	0				
1	45 57.8 +51.9	140.9	45 11.0 +52.4	141.5	44 23.8 +52.9	142.2	43 36.3 +53.2	142.8	42 48.3 +53.7	143.3	42 00.0 +54.1	143.9	41 11.4 +54.4	144.4	40 22.5 +54.7	144.9	1	0	0	0	0	0	0	0	0				
2	46 49.7 +51.7	140.2	46 03.4 +52.2	140.9	45 16.7 +52.6	141.5	44 29.5 +53.1	142.1	43 42.0 +53.4	142.7	42 54.1 +53.8	143.3	42 05.8 +54.2	143.8	41 17.2 +54.6	144.3	2	0	0	0	0	0	0	0	0				
3	47 41.4 +51.3	139.4	46 55.6 +51.8	140.1	46 09.3 +52.3	140.8	45 22.6 +52.8	141.4	44 35.4 +53.3	142.1	43 47.9 +53.7	142.7	43 00.0 +54.1	143.2	42 11.8 +54.4	143.8	3	0	0	0	0	0	0	0	0				
4	48 32.7 +51.0	138.7	47 47.4 +51.6	139.4	47 01.6 +52.1	140.1	46 15.4 +52.5	140.8	45 28.7 +53.0	141.4	44 41.6 +53.4	142.0	43 54.1 +53.8	142.6	43 06.2 +54.3	143.2	4	0	0	0	0	0	0	0	0				
5	49 23.7 +50.7	137.9	48 39.0 +51.2	138.6	47 53.7 +51.8	139.4	47 07.9 +52.3	140.1	46 21.7 +52.8	140.7	45 35.0 +53.2	141.4	44 47.9 +53.7	142.0	44 00.5 +54.0	142.6	5	0	0	0	0	0	0	0	0				
6	50 14.4 +50.3	137.0	49 30.2 +50.9	137.8	48 45.5 +51.5	138.6	48 00.2 +52.0	139.3	47 14.5 +52.5	140.0	46 28.2 +53.0	140.7	45 41.6 +53.4	141.4	44 54.5 +53.8	142.0	6	0	0	0	0	0	0	0	0				
7	51 04.7 +49.9	136.2	50 21.1 +50.6	137.0	49 37.0 +51.1	137.8	48 52.2 +51.7	138.6	48 07.0 +52.2	139.3	47 21.2 +52.8	140.0	46 35.0 +53.2	140.7	45 48.3 +53.7	141.4	7	0	0	0	0	0	0	0	0				
8	51 54.6 +49.5	135.3	51 11.7 +50.1	136.2	50 28.1 +50.8	137.0	49 43.9 +51.4	137.8	48 59.2 +51.9	138.6	48 14.0 +52.4	139.3	47 28.2 +52.9	140.0	46 42.0 +53.4	140.7	8	0	0	0	0	0	0	0	0				
9	52 44.1 +49.1	134.4	52 01.8 +49.8	135.3	51 18.9 +50.4	136.2	50 35.3 +51.0	137.0	49 51.1 +51.7	137.8	49 06.4 +52.2	138.6	48 21.1 +52.7	139.3	47 35.4 +53.1	140.1	9	0	0	0	0	0	0	0	0				
10	53 33.2 +48.6	133.4	52 51.6 +49.3	134.4	52 09.3 +50.0	135.3	51 26.3 +50.7	136.2	50 42.8 +51.2	137.0	49 58.6 +51.8	137.8	49 13.8 +52.4	138.6	48 28.5 +53.0	139.4	10	0	0	0	0	0	0	0	0				
11	54 21.8 +48.0	132.4	53 40.9 +48.9	133.4	52 59.3 +49.6	134.4	52 17.0 +50.3	135.3	51 34.0 +51.0	136.2	50 50.4 +51.6	137.0	50 06.2 +52.1	137.9	49 21.5 +52.6	138.6	11	0	0	0	0	0	0	0	0				
12	55 09.8 +47.5	131.4	54 29.8 +48.3	132.4	53 48.9 +49.1	133.4	53 07.3 +49.8	134.4	52 25.0 +50.5	135.3	51 42.0 +51.1	136.2	50 58.3 +51.8	137.1	50 14.1 +52.3	137.9	12	0	0	0	0	0	0	0	0				
13	55 57.3 +46.9	130.3	55 18.1 +47.8	131.4	54 38.0 +48.6	132.4	53 57.1 +49.4	133.5	53 15.5 +50.1	134.4	52 33.1 +50.4	135.4	51 50.1 +51.4	136.3	51 06.4 +52.0	137.1	13	0	0	0	0	0	0	0	0				
14	56 44.2 +46.3	129.1	56 05.9 +47.2	130.3	55 26.6 +48.1	131.4	54 46.5 +48.9	132.5	54 05.6 +49.6	133.5	53 23.9 +50.4	134.5	52 41.5 +51.1	135.4	51 58.4 +51.7	136.3	14	0	0	0	0	0	0	0	0				
15	57 30.5 +45.6	128.0	56 53.1 +46.6	129.2	56 14.7 +47.5	130.4	55 35.4 +48.4	131.5	54 55.2 +49.2	132.5	54 14.3 +49.9	133.6	53 32.6 +50.6	134.6	52 50.1 +51.3	135.5	15	0	0	0	0	0	0	0	0				
16	58 16.1 +44.9	126.8	57 39.7 +45.9	128.0	57 02.2 +46.9	129.2	56 23.8 +47.8	130.4	55 44.4 +48.7	131.5	54 04.2 +49.5	132.6	53 23.2 +50.2	133.6	53 41.4 +50.9	134.6	16	0	0	0	0	0	0	0	0				
17	59 01.0 +44.1	125.5	58 25.6 +45.2	126.8	57 49.1 +46.2	128.1	57 11.6 +47.2	129.3	56 33.1 +48.1	130.5	55 53.7 +49.0	131.6	55 13.4 +49.8	132.7	54 32.3 +50.5	133.7	17	0	0	0	0	0	0	0	0				
18	59 45.1 +43.2	124.1	59 10.8 +44.4	125.5	58 35.3 +46.5	126.9	57 58.8 +46.5	128.2	57 21.2 +47.5	129.4	56 42.7 +48.4	130.6	56 03.2 +49.3	131.7	55 22.8 +50.1	132.8	18	0	0	0	0	0	0	0	0				
19	60 28.3 +42.2	122.8	59 55.2 +43.6	124.2	59 20.9 +44.7	125.6	58 45.3 +45.9	127.0	58 08.7 +46.9	128.2	57 31.4 +47.9	129.5	56 52.5 +48.7	130.7	56 12.9 +49.6	131.8	19	0	0	0	0	0	0	0	0				
20	61 10.6 +41.4	121.3	60 38.8 +42.7	122.8	60 05.6 +43.9	124.3	59 31.2 +45.1	125.7	58 55.6 +46.2	127.0	58 18.9 +47.2	128.3	57 41.2 +48.1	129.6	57 02.5 +49.0	130.8	20	0	0	0	0	0	0	0	0				
21	61 52.0 +40.3	119.8	61 21.5 +41.7	121.4	60 49.5 +43.1	122.9	60 16.3 +44.3	124.4	59 41.8 +45.4	125.8	59 06.1 +46.5	127.2	58 29.3 +47.6	128.5	57 51.5 +48.5	129.7	21	0	0	0	0	0	0	0	0				
22	62 32.3 +39.2	118.2	62 03.2 +40.6	119.9	61 32.6 +42.0	121.5	61 00.6 +43.4	123.0	60 27.2 +44.7	124.5	59 52.6 +45.8	125.9	59 16.9 +46.8	127.3	58 40.0 +47.8	128.6	22	0	0	0	0	0	0	0	0				
23	63 11.5 +37.9	116.5	62 43.8 +39.6	118.3	62 14.6 +41.1	119.9	61 44.0 +42.4	121.6	61 11.9 +43.7	123.1	60 38.4 +45.0	124.6	60 03.7 +46.2	126.0	59 27.8 +47.2	127.4	23	0	0	0	0	0	0	0	0				
24	63 49.4 +36.7	114.8	63 23.4 +38.3	116.6	62 55.7 +32.5	109.2	65 27.8 +34.5	111.2	65 05.1 +36.4	113.3	64 40.4 +38.3	115.2	64 14.0 +39.3	117.1	63 45.8 +41.5	118.9	63 16.1 +42.9	120.6	24	0	0	0	0	0	0	0	0		
25	64 26.1 +35.2	113.0	64 01.7 +37.1	114.9	63 35.6 +38.7	116.7	63 07.8 +40.3	118.5	62 38.4 +41.8	120.2	62 07.5 +43.2	121.8	61 35.2 +44.5	123.4	61 01.5 +45.7	124.9	25	0	0	0	0	0	0	0	0				
26	65 01.3 +33.7	111.1	64 38.8 +35.6	113.1	64 14.3 +37.5	115.0	63 48.1 +39.1	116.8	63 20.2 +40.7	118.6	62 50.7 +42.2	120.3	62 19.7 +43.6	122.0	61 47.2 +44.9	123.5	26	0	0	0	0	0	0	0	0				
27	65 35.0 +32.2	109.1	65 14.4 +34.1	111.2	64 51.8 +36.0	113.1	64 27.2 +37.9	115.1	64 00.9 +33.5	116.9	63 32.9 +41.1	118.7	63 03.3 +42.5	120.5	62 32.1 +44.0	122.1	27	0	0	0	0	0	0	0	0				
28	66 07.2 +30.4	107.0	65 48.5 +32.5	109.2	65 27.8 +34.5	111.2	65 05.1 +36.4	113.3	64 40.4 +38.3	115.2	64 14.0 +39.3	117.1	63 45.8 +41.5	118.9	63 16.1 +42.9	120.6	28	0	0	0	0	0	0	0	0				
29	66 37.6 +28.5	104.9	66 21.0 +30.8	107.1	66 02.3 +32.9	109.3	65 41.5 +34.9	111.3	65 18.7 +36.8	113.4	65 44.5 +38.7	115.3	64 53.9 +38.7	117.5	64 27.3 +40.4	119.2	67 35.2 +32.8	107.6	67 15.9 +35.0	109.9	29	0	0	0	0	0	0	0	0
30	67 06.1 +26.7	102.7	66 51.8 +29.0	104.9	66 35.2 +31.2	107.2	66 16.4 +33.4	109.3	65 55.5 +35.4	111.5	65 07.7 +39.0	115.5	65 07.7 +39.0	115.5	64 40.9 +40.8	117.4	67 50.9 +33.2	107.8	67 08.0 +31.0	105.4	30	0	0	0	0	0	0	0	0
31	67 32.8 +24.5	100.3	67 20.8 +27.0	102.7	67 06.4 +29.4	105.0	66 49.8 +31.5	107.3	66 30.9 +33.7	109.5	66 09.8 +35.4	111.6	65 46.7 +37.7	113.7	65 21.7 +39.4	115.7	68 08.0 +35.4	105.5	68 39.0 +35.4	103.1	31	0	0	0	0	0	0	0	0
32	67 57.3 +22.3	97.9	67 47.8 +24.9	100.3	67 35.8 +27.3	102.7	67 21.3 +29.8	105.1	67 04.6 +32.0	107.4	66 45.6 +34.1	109.6	66 24.4 +36.2	111.7	66 01.1 +38.1	113.8	66 39.2 +36.7	111.9	66 39.2 +36.7	111.9	32	0	0	0	0	0	0	0	0
33	68 19.6 +20.1	95.4	68 12.7 +22.7	97.9	68 03.1 +23.1	98.4	69 41.6 +12.9	97.0	69 47.5 +15.9	99.0	69 46.1 +18.8	97.2	69 41.8 +21.7	95.															

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 26° , 334°

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
0	45 05.6 -52.4	141.6	44 18.4 -52.9	142.2	43 30.8 -53.3	142.8	42 42.8 -53.7	143.4	41 54.5 -54.1	143.9	41 05.8 -54.4	144.4	40 16.9 -54.7	144.9	39 27.6 -55.0	145.4	39 00.0 -55.6	147.8	34 51.3 -55.6	147.8	34 42.0 -55.4	147.5	34 22.6 -55.2	145.9	0
1	44 13.2 -52.7	142.3	43 25.5 -53.1	142.9	42 37.5 -53.5	143.4	41 49.1 -53.8	144.0	40 00.4 -54.2	144.5	40 11.4 -54.5	145.0	39 22.2 -54.9	145.5	38 32.6 -55.2	145.9	38 00.0 -55.8	148.7	33 55.7 -55.7	148.3	34 46.6 -55.4	147.9	33 51.2 -55.6	148.4	1
2	43 20.5 -52.9	143.0	42 32.4 -53.3	143.5	41 44.0 -53.7	144.1	40 55.3 -54.1	144.6	40 06.2 -54.3	145.1	39 16.9 -54.7	145.5	38 27.3 -55.0	146.0	37 37.4 -55.2	146.4	36 42.2 -55.4	146.9	36 00.0 -55.8	149.2	32 49.3 -55.7	148.2	32 04.2 -55.9	149.2	2
3	42 27.6 -53.2	143.6	41 39.1 -53.5	144.1	40 50.3 -53.8	144.6	40 01.2 -54.2	145.1	39 11.9 -54.5	145.6	38 22.2 -54.8	146.1	37 32.3 -55.1	146.5	36 42.2 -55.4	146.9	36 37.2 -55.2	147.0	35 46.8 -55.5	147.4	35 00.0 -55.8	149.4	31 08.3 -56.0	149.6	3
4	41 34.4 -53.3	144.2	40 45.6 -53.7	144.7	39 56.5 -54.1	145.2	39 07.0 -54.3	145.7	38 17.4 -54.7	146.1	37 27.4 -55.0	146.6	36 37.2 -55.2	147.0	35 46.8 -55.5	147.4	35 00.0 -55.8	149.4	30 12.3 -56.0	150.0	30 04.2 -55.8	150.0	29 16.3 -56.1	150.4	4
5	40 41.1 -53.5	144.8	39 51.9 -53.8	145.3	39 02.4 -54.1	145.8	38 12.7 -54.5	146.2	37 22.7 -54.8	146.7	36 32.4 -55.0	147.1	35 42.0 -55.4	147.5	34 51.3 -55.6	147.8	34 00.0 -55.8	149.4	33 27.6 -55.0	145.4	33 22.2 -54.9	145.5	33 04.2 -55.8	148.7	5
6	39 47.6 -53.7	145.4	38 58.1 -54.0	145.9	38 08.3 -54.4	146.3	37 18.2 -54.6	146.8	36 27.9 -54.9	147.2	35 37.4 -55.2	147.6	34 46.6 -55.4	147.9	33 55.7 -55.7	148.3	33 00.0 -55.8	148.7	32 27.3 -55.0	148.2	32 04.2 -55.9	149.2	32 00.0 -55.8	149.2	6
7	38 53.9 -53.8	146.0	38 04.1 -54.2	146.4	37 13.9 -54.4	146.9	36 23.6 -54.8	147.3	35 33.0 -55.1	147.7	34 42.2 -55.3	148.0	33 51.2 -55.6	148.4	33 00.0 -55.8	148.7	32 27.3 -55.0	148.2	32 04.2 -55.9	149.2	32 00.0 -55.8	149.2	7		
8	38 00.1 -54.0	146.6	37 09.9 -54.3	147.0	36 19.5 -54.6	147.4	35 28.8 -54.9	147.8	34 37.9 -55.1	148.2	33 46.9 -55.4	148.5	32 55.6 -55.6	148.9	32 04.2 -55.9	149.2	31 27.3 -55.0	148.2	31 04.2 -55.8	148.7	31 00.0 -55.8	149.2	8		
9	37 06.1 -54.2	147.1	36 15.6 -54.5	147.5	35 24.9 -54.8	147.9	34 33.9 -55.0	148.3	33 42.8 -55.3	148.6	32 51.5 -55.5	149.0	32 00.0 -55.8	149.3	31 08.3 -56.0	149.6	31 00.0 -55.8	149.3	30 27.3 -55.0	149.2	30 04.2 -55.8	149.2	9		
10	36 11.9 -54.3	147.7	35 21.1 -54.5	148.0	34 30.1 -54.8	148.4	33 38.9 -55.1	148.8	32 47.5 -55.3	149.1	31 56.0 -55.6	149.4	31 04.2 -55.8	149.7	30 12.3 -56.0	150.0	30 04.2 -55.8	150.0	29 16.3 -56.1	150.4	29 00.0 -55.8	150.4	10		
11	35 17.6 -54.4	148.2	34 26.6 -54.7	148.5	33 35.3 -55.0	148.9	32 43.8 -55.2	149.2	31 52.2 -55.5	149.6	31 00.4 -55.7	149.9	30 08.4 -55.8	150.2	29 16.3 -56.1	150.4	29 00.0 -55.8	150.4	28 20.7 -55.2	150.8	28 02.2 -55.6	150.8	11		
12	34 23.2 -54.5	148.7	33 31.9 -54.9	149.0	32 40.3 -55.1	149.4	31 48.6 -55.3	149.7	30 56.7 -55.5	150.0	30 07.0 -55.8	150.3	29 12.5 -56.0	150.6	28 20.2 -56.2	150.8	28 02.2 -55.6	150.8	27 24.0 -56.3	151.2	27 00.0 -55.8	151.2	12		
13	33 28.7 -54.7	149.2	32 37.0 -54.9	149.5	31 45.2 -55.1	149.8	30 53.3 -55.4	150.2	30 01.2 -55.7	150.4	29 08.9 -55.8	150.7	28 16.5 -56.1	151.0	27 24.0 -56.3	151.2	27 00.0 -55.8	151.2	26 27.7 -56.3	151.6	26 04.2 -55.9	151.6	13		
14	32 34.0 -54.8	149.7	31 42.1 -55.0	150.0	30 50.1 -55.3	150.3	29 57.9 -55.5	150.6	29 05.5 -55.7	150.9	28 13.1 -56.0	151.1	27 20.4 -56.1	151.4	26 27.7 -56.3	151.6	26 04.2 -55.9	151.6	25 24.0 -56.1	151.8	25 00.0 -55.8	151.8	14		
15	31 39.2 -54.9	150.2	30 47.1 -55.1	150.5	29 54.8 -55.4	150.8	29 02.4 -55.6	151.0	28 09.8 -55.8	151.3	27 17.1 -56.0	151.5	26 24.3 -56.2	151.8	25 31.4 -56.4	152.0	25 00.0 -55.8	152.0	24 27.7 -56.3	152.4	24 04.2 -55.9	152.4	15		
16	30 44.3 -55.0	150.6	29 52.0 -55.3	150.9	28 59.4 -55.4	151.2	28 06.8 -55.7	151.5	27 14.0 -55.8	151.7	26 21.1 -56.0	151.9	25 28.1 -56.2	152.2	24 35.0 -56.4	152.4	24 00.0 -55.8	152.4	23 27.7 -56.3	152.6	23 04.2 -55.9	152.6	16		
17	29 49.3 -55.1	151.1	28 56.7 -55.3	151.4	28 04.0 -55.5	151.6	27 11.1 -55.7	151.9	26 18.2 -56.0	152.1	25 25.1 -56.2	152.3	24 31.9 -56.3	152.6	23 38.6 -56.5	152.8	23 00.0 -55.8	152.8	22 27.7 -56.3	153.0	22 04.2 -55.9	153.0	17		
18	28 54.2 -55.1	151.6	28 01.4 -55.4	151.8	27 08.5 -55.6	152.1	26 15.4 -55.8	152.3	25 22.2 -56.0	152.5	24 28.9 -56.1	152.7	23 35.6 -56.4	152.9	22 42.1 -56.5	153.1	22 04.2 -55.9	153.1	21 27.7 -56.3	153.3	21 04.2 -55.8	153.3	18		
19	27 59.1 -55.3	152.0	27 06.0 -55.4	152.3	26 12.9 -55.7	152.5	25 19.6 -55.9	152.7	24 26.2 -56.0	152.9	23 32.8 -56.3	153.1	22 39.2 -56.5	153.3	21 45.6 -56.6	153.5	21 00.0 -55.8	153.5	20 27.7 -56.3	153.7	20 04.2 -55.9	153.7	19		
20	27 03.8 -55.3	152.4	26 10.6 -55.6	152.7	25 17.2 -55.7	152.9	24 23.7 -55.9	153.1	23 30.2 -56.1	153.3	22 36.5 -56.3	153.5	21 42.8 -56.5	153.7	20 49.0 -56.7	153.9	20 00.0 -55.8	153.9	19 27.7 -56.3	154.1	19 04.2 -55.9	154.1	20		
21	26 08.5 -55.4	152.9	25 15.0 -55.6	153.1	24 21.5 -55.8	153.3	23 27.8 -56.0	153.5	22 34.1 -56.2	153.7	21 40.2 -56.3	153.9	20 46.3 -56.5	154.0	19 52.3 -56.6	154.2	19 00.0 -55.8	154.2	18 27.7 -56.3	154.4	18 04.2 -55.9	154.4	21		
22	25 13.1 -55.5	153.3	24 19.4 -55.7	153.5	23 25.7 -55.9	153.7	22 31.8 -56.0	153.9	21 37.9 -56.2	154.1	20 43.9 -56.4	154.2	19 49.8 -56.5	154.4	18 55.7 -56.7	154.6	18 00.0 -55.8	154.6	17 27.7 -56.3	154.8	17 04.2 -55.9	154.8	22		
23	24 17.6 -55.6	153.7	23 23.7 -55.7	153.9	22 29.8 -55.9	154.1	21 35.8 -56.1	154.3	20 41.7 -56.3	154.4	19 47.5 -56.4	154.6	18 53.3 -56.6	154.8	17 59.0 -56.8	154.9	17 00.0 -55.8	154.9	16 27.7 -56.3	155.1	16 04.2 -55.9	155.1	23		
24	23 22.0 -55.6	154.1	22 28.0 -55.8	154.3	21 33.9 -56.0	154.5	20 39.7 -56.2	154.7	19 45.4 -56.3	154.8	18 51.1 -56.5	155.0	17 56.7 -56.6	155.1	17 02.2 -56.7	155.2	16 27.7 -56.3	155.4	16 04.2 -55.9	155.4	15 27.7 -56.3	155.6	24		
25	22 26.4 -55.7	154.5	21 32.2 -55.9	154.7	20 37.9 -56.0	154.9	19 43.5 -56.2	155.0	18 49.1 -56.4	155.2	17 54.6 -56.5	155.3	17 00.1 -56.7	155.5	16 05.5 -56.9	155.6	15 27.7 -56.3	155.8	15 04.2 -55.9	155.8	14 27.7 -56.3	156.0	14 04.2 -55.9	156.0	25
26	21 30.7 -55.7	154.9	20 36.3 -55.9	155.1	19 41.9 -56.1	155.3	18 47.3 -56.2	155.4	17 52.7 -56.4	155.5	16 58.1 -56.6	155.7	16 03.4 -56.7	155.8	15 55.7 -56.7	155.9	15 08.6 -56.8	155.9	14 27.7 -56.3	156.1	14 04.2 -55.9	156.1	13 27.7 -56.3	156.3	26
27	20 35.0 -55.8	155.3	19 40.4 -56.0	155.5	18 45.8 -56.1	155.6	17 51.1 -56.3	155.8	16 56.3 -56.4	155.9	15 01.5 -56.5	156.0	15 06.7 -56.7	156.1	14 11.8 -56.9	156.2	14 04.2 -55.9	156.2	13 27.7 -56.3	156.4	13 04.2 -55.9	156.4	12 27.7 -56.3	156.6	12
28	19 39.2 -55.9	155.7	18 44.4 -56.1	155.9	17 49.7 -56.2	156.0	16 54.8 -56.3	156.1	15 59.9 -56.5	156.3	15 05.0 -56.6	156.4	14 10.0 -56.8	156.6	13 44.6 -56.9	156.7	13 03.1 -56.7	156.8	12 27.7 -56.3	156.9	12 04.2 -55.9	156.9	11 27.7 -56.3	157.1	11
29	13 07.4 -56.1	158.4	12 11.6 -56.3	158.4	11 15.8 -56.4	158.5	10 19.9 -56.5	158.6	9 24.1 -56.7	158.7	8 28.2 -56.8	158.8	7 32.2 -56.8	158.8	6 36.3 -57.0	158.8	5 39.3 -57.0	159.1	5 35.4 -57.0	159.1	4 34.3 -57.0	159.4	4		
30	9																								

27°, 333° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	38°			39°			40°			41°			42°			43°			44°			45°			Dec.
Dec.	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.												
0	44 35.9 +51.7	140.4		43 49.4 +52.2	141.0		43 02.6 +52.7	141.6		42 15.4 +53.1	142.2		41 27.8 +53.5	142.7		40 39.9 +53.9	143.2		39 51.7 +54.2	143.7		39 03.2 +54.5	144.2		0
1	45 27.6 +51.5	139.7		44 41.6 +52.0	140.3		43 55.3 +52.4	140.9		43 08.5 +52.8	141.5		42 21.3 +53.3	142.1		41 33.8 +53.7	142.7		40 45.9 +54.1	143.2		39 57.7 +54.4	143.7		1
2	46 19.1 +51.1	138.9		45 33.6 +51.7	139.6		44 47.7 +52.2	140.3		44 01.3 +52.7	140.9		43 14.6 +53.1	141.5		42 27.5 +53.4	142.0		41 40.0 +53.8	142.6		40 52.1 +54.3	143.1		2
3	47 10.2 +50.8	138.2		46 25.3 +51.4	138.9		45 39.9 +51.9	139.6		44 54.0 +52.4	140.2		44 07.7 +52.8	140.8		43 20.9 +53.3	141.4		42 33.8 +53.7	142.0		41 46.4 +54.0	142.6		3
4	48 01.1 +50.5	137.4		47 16.7 +51.1	138.1		46 31.8 +51.6	138.8		45 46.4 +52.1	139.5		45 00.5 +52.6	140.2		44 14.2 +53.1	140.8		43 27.5 +53.5	141.4		42 40.4 +53.9	142.0		4
5	48 51.6 +50.2	136.6		48 07.8 +50.7	137.3		47 23.4 +51.3	138.1		46 38.5 +51.8	138.8		45 53.1 +52.4	139.5		45 07.3 +52.8	140.1		44 21.0 +53.3	140.8		43 34.3 +53.7	141.4		5
6	49 41.8 +49.8	135.7		48 58.5 +50.5	136.5		48 14.7 +51.0	137.3		47 30.3 +51.6	138.1		46 45.5 +52.0	138.8		46 00.1 +52.6	139.5		45 14.3 +53.0	140.1		44 28.0 +53.5	140.8		6
7	50 31.6 +49.4	134.9		49 49.0 +50.0	135.7		49 05.7 +50.7	136.5		48 21.9 +51.2	137.3		47 37.5 +51.8	138.0		46 52.7 +52.3	138.8		46 07.3 +52.8	139.5		45 21.5 +53.3	140.1		7
8	51 21.0 +48.9	134.0		50 39.0 +49.7	134.8		49 56.4 +50.3	135.7		49 13.1 +51.0	136.5		48 29.3 +51.5	137.3		47 45.0 +52.0	138.0		47 00.1 +52.6	138.8		46 14.8 +53.0	139.5		8
9	52 09.9 +48.6	133.0		51 28.7 +49.2	133.9		50 46.7 +49.9	134.8		50 04.1 +50.5	135.7		49 20.8 +51.2	136.5		48 37.0 +51.7	137.3		47 52.7 +52.2	138.0		47 07.8 +52.8	138.8		9
10	52 58.5 +48.0	132.1		52 17.9 +48.8	133.0		51 36.6 +49.5	134.0		50 54.6 +50.2	134.8		50 12.0 +50.8	135.7		49 28.7 +51.5	136.5		48 44.9 +52.0	137.3		48 00.6 +52.5	138.1		10
11	53 46.5 +47.5	131.1		53 06.7 +48.3	132.1		52 26.1 +49.0	133.0		51 44.8 +49.8	134.0		51 02.8 +50.4	134.9		50 20.2 +51.0	135.7		49 36.9 +51.7	136.5		48 53.1 +52.2	137.3		11
12	54 34.0 +46.9	130.0		53 55.0 +47.7	131.1		53 15.1 +48.6	132.1		52 34.6 +49.3	133.1		51 53.2 +50.1	134.0		51 11.2 +50.7	134.9		50 28.6 +51.3	135.8		49 45.3 +51.9	136.6		12
13	55 20.9 +46.3	128.9		54 42.7 +47.3	130.0		54 03.7 +48.1	131.1		53 23.9 +48.9	132.1		52 43.3 +49.6	133.1		52 01.9 +50.3	134.0		51 19.9 +51.0	134.9		50 37.2 +51.6	135.8		13
14	56 07.2 +45.7	127.8		55 30.0 +46.6	128.9		54 51.8 +47.5	130.1		54 12.8 +48.3	131.1		53 32.9 +49.1	132.1		52 52.2 +49.8	133.1		51 28.8 +51.2	135.0		51 28.8 +51.2	135.0		14
15	56 52.9 +45.0	126.6		56 16.6 +46.0	127.8		55 39.3 +47.0	129.0		55 01.1 +47.9	130.1		54 22.0 +48.7	131.2		53 42.1 +49.5	132.2		53 01.4 +50.2	133.2		52 20.0 +50.9	134.1		15
16	57 37.9 +44.3	125.4		57 02.6 +45.3	126.7		56 26.3 +46.3	127.9		55 49.0 +47.2	129.0		55 10.7 +48.1	130.2		54 31.6 +48.6	131.2		53 51.6 +49.8	132.3		53 10.9 +50.4	133.3		16
17	58 22.2 +43.4	124.1		57 47.9 +44.6	125.4		57 12.6 +45.6	126.7		56 36.2 +46.7	127.9		55 58.8 +47.6	129.1		55 20.5 +48.5	130.2		54 41.4 +49.2	131.3		54 01.3 +50.1	132.4		17
18	59 05.6 +42.6	122.8		58 32.5 +43.8	124.2		57 58.2 +45.0	125.5		57 22.9 +45.9	126.8		56 46.4 +47.0	128.0		56 09.0 +47.9	129.2		55 30.6 +48.8	130.3		54 51.4 +49.5	131.4		18
19	59 48.2 +41.7	121.4		59 16.3 +43.0	122.8		58 43.2 +44.1	124.2		58 08.8 +45.3	125.6		57 33.4 +46.3	126.9		56 56.9 +47.3	128.1		56 19.4 +48.2	129.3		55 40.9 +49.1	130.4		19
20	60 29.9 +40.8	120.0		59 59.3 +42.1	121.5		59 27.3 +43.4	122.9		58 54.1 +44.5	124.3		58 19.7 +45.6	125.7		57 44.2 +46.6	126.9		57 07.6 +47.6	128.2		56 30.0 +48.5	129.4		20
21	61 10.7 +39.7	118.5		60 41.4 +41.1	120.0		60 10.7 +42.4	121.5		59 38.6 +43.7	123.0		59 05.3 +44.9	124.4		58 30.8 +46.0	125.8		57 55.2 +47.0	127.1		57 18.5 +48.0	128.3		21
22	61 50.4 +38.5	116.9		61 22.5 +40.0	118.5		60 53.1 +41.5	120.1		60 22.3 +42.8	121.6		59 50.2 +44.0	123.1		59 16.8 +45.2	124.5		58 42.2 +46.3	125.9		58 06.5 +47.3	127.2		22
23	62 28.9 +37.4	115.2		62 02.5 +39.0	117.0		61 34.6 +40.4	118.6		61 05.1 +41.8	120.2		60 34.2 +43.2	121.7		60 02.0 +44.4	123.2		59 28.5 +45.6	124.6		58 53.8 +46.7	126.0		23
24	63 06.3 +36.0	113.5		62 41.5 +37.7	115.3		62 15.0 +39.3	117.0		61 46.9 +40.9	118.7		61 17.4 +42.2	120.3		60 46.4 +43.6	121.9		60 14.1 +44.8	123.3		59 40.5 +45.9	124.8		24
25	63 42.3 +34.7	111.7		63 19.2 +36.5	113.6		62 54.3 +38.1	115.4		62 27.8 +39.7	117.1		61 59.6 +41.2	118.8		61 30.0 +42.6	120.4		60 58.9 +43.9	122.0		60 26.4 +45.2	123.5		25
26	64 17.0 +33.2	109.9		63 55.7 +35.0	111.8		63 32.4 +36.9	113.7		63 07.5 +38.5	115.5		62 40.8 +40.1	117.2		62 12.6 +41.6	118.9		61 42.8 +43.0	120.6		61 11.6 +44.3	122.1		26
27	64 50.2 +31.6	107.9		64 30.7 +33.6	109.9		64 09.3 +35.5	111.9		63 46.0 +37.3	113.8		63 20.9 +39.0	115.6		62 54.2 +40.5	117.4		62 25.8 +42.0	119.1		61 55.9 +43.4	120.7		27
28	65 21.8 +30.0	105.9		65 04.3 +32.0	108.0		64 44.8 +34.0	110.0		64 23.3 +35.8	112.0		63 59.9 +37.6	113.9		63 34.7 +39.3	115.7		63 07.8 +40.9	117.5		62 39.3 +42.4	119.2		28
29	65 51.8 +28.1	103.8		65 36.3 +30.4	106.0		65 18.8 +32.4	108.1		64 59.1 +34.5	110.1		64 37.3 +36.5	112.1		64 14.0 +38.1	114.0		63 48.7 +39.8	115.9		63 21.7 +41.3	117.7		29
30	66 19.9 +26.3	101.6		66 06.7 +28.5	103.9		65 51.2 +30.7	106.0		65 33.6 +32.8	108.1		65 13.8 +34.9	110.2		64 52.1 +36.7	112.2		64 28.5 +38.5	114.2		64 03.0 +40.2	116.0		30
31	66 46.2 +24.2*	99.4		66 35.2 +26.6	101.7		66 21.9 +28.9	103.9		66 06.4 +31.1	106.1		65 48.7 +33.2	108.2		65 28.8 +35.4	110.3		65 07.0 +37.1	112.4		64 43.2 +38.9	114.3		31
32	67 10.4 +22.1*	97.1		67 01.8 +24.6*	99.4		66 50.8 +27.1*	101.7		66 37.5 +29.3	104.0		66 21.9 +31.5	106.2		66 04.1 +34.3	108.4		65 44.1 +35.7	110.5		65 22.1 +37.6	112.5		32
33	67 32.5 +20.0	94.6		67 26.4 +22.5*	97.0		67 17.9 +24.9*	99.4		67 06.8 +27.4	101.8		66 53.4 +29.8	104.0		66 37.7 +32.0	106.3		66 19.8 +34.1	108.5		65 59.7 +36.1	110.6		33
34	67 52.5 +17.5*	92.1		67 48.9 +20.3*	94.6		67 14.1 +21.8*	97.1		67 34.2 +23.2*	99.4		67 51.0 +25.7*	100.9		67 39.8 +28.2	104.2		67 26.3 +30.5	104.2		67 10.3 +32.9	106.6		35
35	68 10.0 +15.2*	89.6		68 09.2 +17.8*	92.1		68 05.7 +20.5*	94.6		67 59.6 +23.2*	97.0		67 51.0 +25.7*	99.5		68 08.0 +23.6*	101.7		67 56.8 +26.6	102.0		67 43.2 +30.9	104.4		36
36	68 25.2 +12.7*	87.0		68 27.0 +15.5*	89.5		68 26.2 +18.2*	92.0		68 22.8 +20.9*	94.6		68 16.7 +23.6*	97.1		68 08.0 +26.2*</									

LATITUDE CONTRARY NAME TO DECLINATION **L.H.A. 27°, 333°**

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.								
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z									
0	44	35.9	-52.1	140.4	43	49.4	-52.4	141.0	43	02.6	-52.9	141.6	42	15.4	-53.3	142.2	41	27.8	-53.6	142.7	40	39.9	-54.0	143.2	39	51.7	-54.4	143.7	39	03.2	-54.7	144.2	0
1	43	43.8	-52.2	141.1	42	57.0	-52.7	141.7	42	09.7	-53.1	142.2	41	22.1	-53.5	142.8	40	34.2	-53.9	143.3	39	45.9	-54.2	143.8	38	57.3	-54.5	144.3	38	08.5	-54.9	144.7	1
2	42	51.6	-52.5	141.8	42	04.3	-52.9	142.3	41	16.6	-53.3	142.9	40	28.6	-53.6	143.4	39	40.3	-54.0	143.9	38	51.7	-54.3	144.4	38	02.8	-54.7	144.8	37	13.6	-54.9	145.3	2
3	41	59.1	-52.7	142.4	41	11.4	-53.1	143.0	40	23.3	-53.4	143.5	39	35.0	-53.9	144.0	38	46.3	-54.2	144.4	37	57.4	-54.5	144.9	37	08.1	-54.8	145.3	36	18.7	-55.1	145.8	3
4	41	06.4	-52.9	143.1	40	18.3	-53.3	143.6	39	29.9	-53.7	144.1	38	41.1	-53.9	144.5	37	52.1	-54.3	145.0	37	02.9	-54.7	145.4	36	13.3	-54.9	145.8	35	23.6	-55.2	146.3	4
5	40	13.5	-53.1	143.7	39	25.0	-53.5	144.2	38	36.2	-53.8	144.6	37	47.2	-54.2	145.1	36	57.8	-54.4	145.5	36	08.2	-54.7	145.9	35	18.4	-55.0	146.3	34	28.4	-55.4	146.7	5
6	39	20.4	-53.3	144.3	38	31.5	-53.6	144.8	37	42.4	-54.0	145.2	36	53.0	-54.3	145.6	36	03.4	-54.6	146.0	35	13.5	-54.9	146.4	34	23.4	-55.2	146.8	33	33.0	-55.4	147.2	6
7	38	27.1	-53.4	144.9	37	37.9	-53.8	145.3	36	48.4	-54.1	145.8	35	58.7	-54.4	146.2	35	08.8	-54.7	146.6	34	18.6	-55.0	146.9	33	28.2	-55.3	147.3	32	37.6	-55.5	147.7	7
8	37	33.7	-53.7	145.4	36	44.1	-53.8	145.9	35	54.3	-54.2	146.3	35	04.3	-54.6	146.7	34	14.1	-54.9	147.1	33	23.6	-55.1	147.4	32	32.9	-55.3	147.8	31	42.1	-55.6	148.1	8
9	36	40.0	-53.7	146.0	35	50.2	-54.1	146.4	35	00.1	-54.4	146.8	34	09.7	-54.6	147.2	33	19.2	-54.9	147.5	32	28.5	-55.2	147.9	31	37.6	-55.5	148.2	30	46.5	-55.7	148.5	9
10	35	46.3	-54.0	146.6	34	56.1	-54.2	147.0	34	05.7	-54.5	147.3	33	15.1	-54.8	147.7	32	24.3	-55.1	148.0	31	33.3	-55.3	148.4	30	42.1	-55.5	148.7	29	50.8	-55.8	149.0	10
11	34	52.3	-54.0	147.1	34	01.9	-54.4	147.5	33	11.2	-54.7	147.8	32	20.3	-54.9	148.2	31	29.2	-55.1	148.5	30	38.0	-55.4	148.8	29	46.6	-55.7	149.1	28	55.0	-55.9	149.4	11
12	33	58.3	-54.2	147.6	33	07.5	-54.5	148.0	32	16.5	-54.7	148.3	31	25.4	-55.0	148.6	30	34.1	-55.3	149.0	29	42.6	-55.5	149.3	28	50.9	-55.7	149.5	27	59.1	-55.9	149.8	12
13	33	04.1	-54.3	148.1	32	13.0	-54.6	148.5	31	21.8	-54.9	148.8	30	30.4	-55.1	149.1	29	38.8	-55.3	149.4	28	47.1	-55.6	149.7	27	55.2	-55.8	150.0	27	03.2	-56.0	150.2	13
14	32	09.8	-54.5	148.6	31	18.4	-54.7	149.0	30	26.9	-54.9	149.3	29	35.3	-55.2	149.6	28	43.5	-55.4	149.8	27	51.5	-55.6	150.1	26	07.2	-56.0	150.6	14				
15	31	15.3	-54.5	149.1	30	23.7	-54.8	149.4	29	32.0	-55.1	149.7	28	40.1	-55.3	150.0	27	48.1	-55.5	150.3	26	55.9	-55.7	150.5	26	03.6	-56.0	150.8	25	11.2	-56.2	151.0	15
16	30	20.8	-54.7	149.6	29	28.9	-54.9	149.9	28	36.9	-55.1	150.2	27	44.8	-55.3	150.5	26	52.6	-55.6	150.7	26	00.2	-55.8	151.0	25	07.6	-55.9	151.2	24	15.0	-56.2	151.4	16
17	29	26.1	-54.7	150.1	28	34.0	-55.0	150.4	27	41.8	-55.2	150.6	26	49.5	-55.5	150.9	25	57.0	-55.7	151.1	24	04.4	-55.9	151.4	23	18.8	-56.2	151.8	17				
18	28	31.4	-54.9	150.6	27	39.0	-55.0	150.8	26	46.6	-55.3	151.1	25	54.0	-55.5	151.5	24	01.3	-55.7	151.8	23	15.6	-56.1	152.0	22	22.6	-56.3	152.2	18				
19	27	36.5	-54.9	151.0	26	44.0	-55.2	151.3	25	51.3	-55.4	151.5	24	58.5	-55.6	151.7	23	12.6	-56.0	152.2	22	19.5	-56.2	152.4	21	26.3	-56.3	152.5	19				
20	26	41.6	-55.0	151.5	25	48.8	-55.2	151.7	24	55.9	-55.4	151.9	24	02.9	-55.6	152.1	23	09.8	-55.8	152.4	22	16.6	-56.0	152.5	21	23.3	-56.2	152.7	20	30.0	-56.4	152.9	20
21	25	46.6	-55.1	151.9	24	53.6	-55.2	152.1	24	00.5	-55.5	152.4	23	07.3	-55.7	152.6	22	14.0	-55.9	152.7	21	20.6	-56.1	152.9	20	27.1	-56.3	153.1	19	33.6	-56.5	153.3	21
22	24	51.5	-55.2	152.4	23	58.3	-55.4	152.6	23	05.0	-55.6	152.8	22	11.6	-55.8	153.0	21	18.1	-56.0	153.1	20	24.5	-56.1	153.3	19	30.9	-56.3	153.5	18	37.1	-56.4	153.6	22
23	23	56.3	-55.3	152.8	23	02.9	-55.5	153.0	22	09.4	-55.7	153.2	21	15.8	-55.8	153.4	20	22.1	-56.0	153.5	19	28.4	-56.2	153.7	18	34.6	-56.4	153.8	17	40.7	-56.5	154.0	23
24	23	01.0	-55.3	153.2	22	07.4	-55.5	153.4	21	13.7	-55.7	153.6	20	20.0	-55.9	153.7	19	26.1	-56.0	153.9	18	32.2	-56.2	154.1	17	38.2	-56.4	154.2	16	44.2	-56.6	154.3	24
25	22	05.7	-55.4	153.6	21	11.9	-55.5	153.8	20	18.0	-55.7	154.0	19	24.1	-55.9	154.1	18	30.1	-56.1	154.3	17	36.0	-56.3	154.4	16	41.8	-56.4	154.6	15	47.6	-56.6	154.7	25
26	21	10.3	-55.4	154.1	20	16.4	-55.7	154.2	19	22.3	-55.8	154.4	18	28.2	-56.0	154.5	17	34.0	-56.2	154.7	16	39.7	-56.3	154.8	15	45.4	-56.5	154.9	14	51.0	-56.6	155.0	26
27	20	14.9	-55.5	154.5	19	20.7	-55.6	154.6	18	26.5	-55.9	154.8	17	32.2	-56.0	154.9	16	37.8	-56.1	155.0	15	43.4	-56.3	155.2	14	48.9	-56.4	155.3	13	54.4	-56.6	155.4	27
28	19	19.4	-55.5	154.9	18	25.1	-55.8	155.0	17	30.6	-55.8	155.1	16	36.2	-56.1	155.3	15	41.7	-56.3	155.4	14	47.1	-56.4	155.5	13	52.5	-56.6	155.6	12	57.8	-56.7	155.7	28
29	18	23.9	-55.6	155.3	17	29.3	-55.7	155.4	16	34.9	-56.0	155.5	15	40.4	-56.2	155.7	14	45.4	-56.3	155.9	13	50.8	-56.5	156.0	12	57.5	-56.7	156.1	11	63.7	-56.8	156.2	29
30	17	28.3	-55.7	155.7	16	33.6	-55.8	155.8	15	38.8	-55.9	155.9	14	44.0	-56.1	156.0	13	49.2	-56.3	156.1	12	54.3	-56.4	156.2	11	59.4	-56.6	156.3	10	67.4	-56.7	156.4	30
31	16	32.6	-55.7	156.0	15	37.8	-55.8	156.2	14	40.8	-56.3	156.3	13	47.9	-56.1	156.4	12	52.9	-56.3	156.5	11	57.9	-56.5	156.6	10	67.7	-56.7	156.7	31				
32	15	36.9	-55.7	156.4	14	41.9	-55.9	156.5	13	46.9	-56.1	156.6	12	51.6	-56.3	156.7	11	56.6	-56.3	156.8	10	60.2	-56.6	156.9	9	68.0	-56.8	157.0	32				
33	14	41.2	-55.8	156.8	13	46.0	-55.9	156.9	12	50.8	-56.0	157.0	11	55.6	-56.2	157.1	10	50.0															

28°, 332° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	38°			39°			40°			41°			42°			43°			44°			45°			Dec.								
Dec.	H	c	d	Z	H	c	d	Z	H	c	d	Z	H	c	d	Z	H	c	d	Z	H	c	d	Z	Dec.								
0	44	05.3	+51.3	139.2	43	19.7	+51.8	139.8	42	33.7	+52.2	140.4	41	47.2	+52.7	141.0	41	00.5	+53.1	141.5	40	13.3	+53.5	142.1	39	25.8	+53.9	142.6	38	38.0	+54.3	143.1	0
1	44	56.6	+51.0	138.5	44	11.5	+51.5	139.1	43	25.9	+52.0	139.7	42	39.9	+52.5	140.3	41	53.6	+52.9	140.9	41	06.8	+53.3	141.5	40	19.7	+53.7	142.0	39	32.3	+54.0	142.5	1
2	45	47.6	+50.7	137.7	45	03.0	+51.2	138.4	44	17.9	+51.8	139.0	43	32.4	+52.2	139.7	42	46.5	+52.6	140.3	42	00.1	+53.1	140.8	41	13.4	+53.5	141.4	40	26.3	+53.9	141.9	2
3	46	38.3	+50.4	136.9	45	54.2	+51.0	137.6	45	09.7	+51.4	138.3	44	24.6	+52.0	139.0	43	39.1	+52.5	139.6	42	53.2	+52.9	140.2	42	06.9	+53.3	140.8	41	20.2	+53.8	141.4	3
4	47	28.7	+50.0	136.1	46	45.2	+50.6	136.9	46	01.1	+51.2	137.6	45	16.6	+51.7	138.3	44	31.6	+52.2	138.9	43	46.1	+52.7	139.6	43	00.2	+53.2	140.2	42	14.0	+53.5	140.8	4
5	48	18.7	+49.7	135.3	47	35.8	+50.3	136.1	46	52.3	+50.9	136.8	46	08.3	+51.4	137.6	45	23.8	+51.9	138.2	44	38.8	+52.4	138.9	43	53.4	+52.8	139.5	43	07.5	+53.3	140.1	5
6	49	08.4	+49.3	134.5	48	26.1	+49.9	135.3	47	43.2	+50.5	136.1	46	59.7	+51.1	136.8	46	15.7	+51.7	137.5	45	31.2	+52.2	138.2	44	46.2	+52.7	138.9	44	00.8	+53.1	139.5	6
7	49	57.7	+48.9	133.6	49	16.0	+49.6	134.4	48	33.7	+50.2	135.2	47	50.8	+50.8	136.0	47	07.4	+51.3	136.8	46	23.4	+51.9	137.5	45	38.9	+52.4	138.2	44	53.9	+52.9	138.9	7
8	50	46.6	+48.4	132.7	50	56.6	+49.1	133.6	49	23.9	+49.8	134.4	48	41.6	+50.5	135.2	47	58.7	+51.1	136.0	47	15.3	+51.6	136.8	46	31.3	+52.1	137.5	45	46.8	+52.7	138.2	8
9	51	35.0	+48.0	131.7	50	54.7	+48.7	132.7	50	13.7	+49.4	133.5	49	32.1	+50.0	134.4	48	49.8	+50.7	135.2	48	06.9	+51.3	136.0	47	23.4	+51.9	136.8	46	39.5	+52.4	137.5	9
10	52	23.0	+47.5	130.8	51	43.4	+48.3	131.7	51	03.1	+49.0	132.7	50	22.1	+49.7	133.5	49	40.5	+50.3	134.4	48	58.2	+51.0	135.2	48	15.3	+51.6	136.0	47	31.9	+52.1	136.8	10
11	53	10.5	+46.6	129.7	52	31.7	+47.7	130.8	51	52.1	+48.6	131.7	51	11.8	+49.3	132.7	50	30.8	+50.0	133.6	49	49.2	+50.6	134.4	49	06.9	+51.2	135.2	48	24.0	+51.8	136.0	11
12	53	57.4	+46.4	128.7	53	19.4	+47.3	129.8	52	40.7	+48.0	130.8	52	01.1	+48.8	131.7	51	20.8	+49.6	132.7	50	39.8	+50.2	133.6	49	58.1	+50.9	134.4	49	15.8	+51.5	135.3	12
13	54	43.8	+45.7	127.6	54	06.7	+46.7	128.7	53	28.7	+47.6	129.8	52	49.9	+48.4	130.8	52	10.4	+49.1	131.8	51	30.0	+49.9	132.7	50	49.0	+50.5	133.6	50	07.3	+51.1	134.5	13
14	55	29.5	+45.1	126.5	54	53.4	+46.0	127.6	54	16.3	+47.0	128.7	53	38.3	+47.8	129.8	52	59.5	+48.6	130.8	52	19.9	+49.4	131.8	51	39.5	+50.1	132.8	50	58.4	+50.8	133.7	14
15	56	14.6	+44.4	125.3	55	39.4	+45.5	126.5	55	03.3	+46.4	127.7	54	26.1	+47.3	128.8	53	48.1	+48.2	129.8	53	09.3	+48.9	130.9	52	29.6	+49.7	131.9	51	49.2	+50.4	132.8	15
16	56	59.0	+43.7	124.1	56	24.9	+44.7	125.3	55	49.7	+45.7	126.5	55	13.4	+46.8	127.7	54	36.3	+47.6	128.8	53	58.2	+48.5	129.9	53	19.3	+49.3	130.9	52	39.6	+50.0	131.9	16
17	57	42.7	+42.9	122.8	57	09.6	+44.0	124.1	56	35.4	+45.1	125.4	56	00.2	+46.1	126.6	55	23.9	+47.1	127.8	54	46.7	+47.9	128.9	54	08.6	+48.8	130.0	53	29.6	+49.6	131.0	17
18	58	25.6	+42.0	121.5	57	53.6	+43.3	122.9	57	20.5	+44.4	124.2	56	46.3	+45.4	125.4	56	11.0	+46.4	126.7	55	34.6	+47.4	127.8	54	57.4	+48.2	129.0	54	19.2	+49.1	130.0	18
19	59	07.6	+41.1	120.1	58	36.9	+42.3	121.5	58	04.9	+43.6	122.9	57	31.7	+44.7	124.2	56	57.4	+45.8	125.5	56	22.0	+46.2	126.7	55	45.6	+47.7	127.9	55	08.3	+48.6	129.1	19
20	59	48.7	+40.2	118.7	59	19.2	+41.5	120.2	58	48.5	+42.7	121.6	58	16.4	+43.9	123.0	57	43.2	+45.0	124.3	57	08.8	+46.1	125.6	56	33.3	+47.2	126.8	55	56.9	+48.0	128.0	20
21	60	28.9	+39.1	117.2	60	00.7	+40.5	118.7	59	31.2	+41.9	120.2	59	00.3	+43.2	121.7	58	28.2	+44.3	123.1	57	54.9	+45.4	124.4	57	20.5	+46.4	125.7	56	44.9	+47.5	126.9	21
22	61	08.0	+37.9	115.6	60	41.2	+39.5	117.2	60	13.1	+40.9	118.8	59	43.5	+42.2	120.3	59	12.5	+43.5	121.8	58	40.3	+44.7	123.2	58	06.9	+45.8	124.5	57	32.4	+46.8	125.8	22
23	61	45.9	+36.8	114.0	61	20.7	+38.4	115.7	60	54.0	+39.8	117.3	60	25.7	+41.3	118.9	59	56.0	+42.6	120.4	59	25.0	+43.9	121.9	58	52.7	+45.1	123.3	58	19.2	+46.1	124.6	23
24	62	22.7	+35.5	112.3	61	59.1	+37.2	114.1	61	33.8	+38.8	115.8	61	07.0	+40.2	117.4	60	38.6	+41.7	119.0	60	08.9	+43.0	120.5	59	37.8	+44.2	122.0	59	05.3	+45.5	123.4	24
25	62	58.2	+34.2	110.6	62	36.3	+35.9	112.4	62	12.6	+37.6	114.1	61	47.2	+39.2	115.8	61	20.3	+40.7	117.5	60	51.9	+42.0	119.1	60	22.0	+43.4	120.6	59	50.8	+44.6	122.1	25
26	63	32.4	+32.7	108.7	63	12.2	+34.5	110.6	62	50.2	+36.3	112.4	62	26.4	+38.0	114.2	62	01.0	+39.5	115.9	61	33.9	+41.1	117.6	61	05.4	+42.4	119.2	60	35.4	+43.8	120.8	26
27	64	05.1	+31.1	106.8	63	46.7	+33.1	108.8	63	26.5	+34.9	110.7	63	04.4	+36.7	112.5	62	40.5	+38.4	114.3	62	15.0	+40.0	116.1	61	47.8	+41.5	117.7	61	19.2	+42.8	119.4	27
28	64	36.2	+29.6	104.9	64	19.8	+31.6	106.9	64	01.4	+33.5	108.8	63	41.1	+35.4	110.8	63	18.9	+37.1	112.6	62	55.0	+38.8	114.4	62	29.3	+40.4	116.2	62	02.0	+41.9	117.9	28
29	65	05.8	+5.3*	78.6	68	19.6	+8.0*	81.1	68	27.6	+10.8*	83.6	68	33.0	+13.6*	86.1	68	35.7	+16.4*	88.7	68	35.8	+19.1*	91.2	68	33.2	+21.8*	93.8	68	27.9	+24.5*	96.3	29
30	65	33.5	+26.0	100.7	65	21.3	+28.2	102.8	65	06.9	+30.3	104.9	64	50.4	+32.4	107.0	64	31.8	+34.4	109.0	64	11.3	+36.2	111.0	63	48.9	+38.0	112.9	63	24.7	+39.7	114.7	30
31	65	59.5	+24.0*	98.5	65	49.5	+26.3	100.7	65	37.2	+28.6	102.9	65	06.2	+30.7	105.0	65	60.2	+32.8	107.1	64	47.5	+34.0	109.1	64	26.9	+36.6	111.1	64	04.4	+38.4	113.0	31
32	66	23.5	+21.9*	96.2	66	15.8	+18.4	98.5	66	05.6	+26.7	100.7	65	53.5	+28.9	102.9	65	39.0	+31.1	105.1	65	22.3	+33.2	107.2	65								

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 28°, 332°

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z			
0	44 05.3 -51.5	139.2	43 19.7 -52.0	139.8	42 33.7 -52.5	140.4	41 47.2 -52.9	141.0	41 00.5 -53.3	141.5	40 13.3 -53.7	142.1	39 25.8 -54.0	142.6	38 38.0 -54.4	143.1	37 43.6 -54.5	143.6	37 49.1 -54.7	144.1	36 49.4 -54.8	144.6	35 54.4 -54.8	144.6	34 59.6 -54.9	145.1	0
1	43 13.8 -51.8	139.9	42 27.7 -52.3	140.5	41 41.2 -52.7	141.1	40 54.3 -53.0	141.6	40 07.2 -53.5	142.1	39 19.6 -53.8	142.6	38 31.8 -54.2	143.1	37 43.6 -54.5	143.6	37 49.1 -54.7	144.1	36 49.4 -54.8	144.6	35 54.4 -54.8	144.6	34 59.6 -54.9	145.1	4		
2	42 22.0 -52.1	140.6	41 35.4 -52.5	141.1	40 48.5 -52.9	141.7	40 01.3 -53.3	142.2	39 13.7 -53.7	142.7	38 25.8 -54.0	143.2	37 37.6 -54.4	143.7	36 49.1 -54.7	144.1	35 54.4 -54.8	144.6	34 59.6 -54.9	145.1	3						
3	41 29.9 -52.3	141.2	40 42.9 -52.7	141.8	39 55.6 -53.1	142.3	39 08.0 -53.5	142.8	38 20.0 -53.8	143.3	37 31.8 -54.2	143.8	36 43.2 -54.4	144.2	35 48.8 -54.7	144.7	34 54.4 -54.8	144.6	33 59.4 -54.9	145.1	3						
4	40 37.6 -52.5	141.9	39 50.2 -52.9	142.4	39 02.5 -53.2	142.9	38 14.5 -53.6	143.4	37 26.2 -54.0	143.9	36 37.6 -54.3	144.3	35 48.8 -54.7	144.7	34 54.4 -54.8	144.6	33 59.6 -54.9	145.1	3								
5	39 45.1 -52.7	142.5	38 57.3 -53.0	143.0	38 09.3 -53.5	143.5	37 20.9 -53.8	144.0	36 32.2 -54.1	144.4	35 43.3 -54.4	144.8	34 54.1 -54.7	145.2	34 04.7 -55.0	145.6	35										
6	38 52.4 -52.9	143.2	38 04.3 -53.3	143.6	37 15.8 -53.6	144.1	36 27.1 -54.0	144.5	35 38.1 -54.3	144.9	34 48.9 -54.6	145.3	33 59.4 -54.7	145.7	33 09.7 -55.1	146.1	6										
7	37 59.5 -53.0	143.8	37 11.0 -53.4	144.2	36 22.2 -53.7	144.6	35 33.1 -54.0	145.1	34 43.8 -54.3	145.5	33 54.3 -54.7	145.8	33 04.5 -54.9	146.2	32 14.6 -55.3	146.6	7										
8	37 06.5 -53.3	144.3	36 17.6 -53.6	144.8	35 28.5 -54.0	145.2	34 39.1 -54.2	145.6	33 49.5 -54.6	146.0	32 59.6 -54.8	146.3	32 09.6 -55.1	146.7	31 19.3 -55.3	147.0	8										
9	36 13.2 -53.4	144.9	35 24.0 -53.7	145.3	34 34.5 -54.0	145.7	33 44.9 -54.4	146.1	32 54.9 -54.6	146.5	32 04.8 -54.9	146.8	31 14.5 -55.2	147.2	30 24.0 -55.4	147.5	9										
10	35 19.8 -53.5	145.5	34 30.3 -53.8	145.9	33 40.5 -54.2	146.3	32 50.5 -54.5	146.6	32 00.3 -54.7	147.0	31 09.9 -55.0	147.3	30 19.3 -55.2	147.6	29 28.6 -55.5	147.9	10										
11	34 26.3 -53.7	146.0	33 36.4 -54.0	146.4	32 46.3 -54.3	146.8	31 56.0 -54.5	147.1	31 05.6 -54.9	147.4	30 14.9 -55.1	147.8	29 24.1 -55.4	148.1	28 33.1 -55.6	148.4	11										
12	33 32.6 -53.8	146.6	32 42.4 -54.1	146.9	31 52.0 -54.4	147.3	31 01.5 -54.7	147.6	30 10.7 -54.9	147.9	29 19.8 -55.2	148.2	28 28.7 -55.4	148.5	27 37.5 -55.7	148.8	12										
13	32 38.8 -54.0	147.1	31 48.3 -54.3	147.4	30 57.6 -54.5	147.8	30 06.8 -54.8	148.1	29 15.8 -55.1	148.4	28 24.6 -55.3	148.7	27 33.3 -55.5	148.9	26 41.8 -55.7	149.2	13										
14	31 44.8 -54.1	147.6	30 54.0 -54.3	147.9	30 03.1 -54.6	148.2	29 12.0 -54.9	148.5	28 20.7 -55.1	148.8	27 29.3 -55.3	149.1	26 37.8 -55.6	149.4	25 46.1 -55.8	149.6	14										
15	30 50.7 -54.2	148.1	29 59.7 -54.5	148.4	29 08.5 -54.8	148.7	28 17.1 -55.0	149.0	27 25.6 -55.2	149.3	26 34.0 -55.5	149.5	25 42.2 -55.7	149.8	24 50.3 -55.9	150.0	15										
16	29 56.5 -54.3	148.6	29 05.2 -54.6	148.9	28 13.7 -54.8	149.2	27 22.1 -55.0	149.5	26 30.4 -55.3	149.7	25 38.5 -55.5	150.0	24 46.5 -55.7	150.2	23 54.4 -55.9	150.4	16										
17	29 02.2 -54.4	149.1	28 10.6 -54.6	149.4	27 18.9 -54.9	149.6	26 27.1 -55.2	149.9	25 35.1 -55.4	150.1	24 43.0 -55.6	150.4	23 50.8 -55.8	150.6	22 58.5 -56.0	150.8	17										
18	28 07.8 -54.5	149.6	27 16.0 -54.8	149.8	26 24.0 -55.0	150.1	25 31.9 -55.2	150.3	24 39.7 -55.4	150.6	23 47.4 -55.6	150.8	22 55.0 -55.8	151.0	22 02.5 -56.1	151.2	18										
19	27 13.3 -54.6	150.1	26 21.2 -54.8	150.3	25 29.0 -55.0	150.5	24 36.7 -55.3	150.8	23 44.3 -55.5	151.0	22 51.8 -55.7	151.2	21 59.2 -56.1	151.4	21 06.4 -56.1	151.6	19										
20	26 18.7 -54.7	150.5	25 26.4 -55.0	150.8	24 34.0 -55.2	151.0	23 41.4 -55.3	151.2	22 48.8 -55.6	151.4	21 56.1 -55.8	151.6	21 03.2 -55.9	151.8	20 10.3 -56.1	152.0	20										
21	25 24.0 -54.8	151.0	24 31.4 -55.0	151.2	23 38.8 -55.2	151.4	22 46.1 -55.5	151.6	21 53.2 -55.6	151.8	20 00.3 -55.8	152.0	20 07.3 -56.1	152.2	19 14.2 -56.2	152.3	21										
22	24 29.2 -54.9	151.4	23 36.4 -55.0	151.6	22 43.6 -55.3	151.8	21 50.6 -55.4	152.0	20 57.6 -55.7	152.2	20 04.5 -55.9	152.4	19 11.3 -56.1	152.6	18 18.0 -56.2	152.7	22										
23	23 34.3 -54.9	151.9	22 41.4 -55.2	152.1	21 48.3 -55.3	152.3	20 55.2 -55.6	152.4	19 01.9 -55.7	152.6	18 08.6 -55.9	152.8	18 15.2 -56.1	152.9	17 21.8 -56.3	153.1	23										
24	22 39.4 -55.0	152.3	21 46.2 -55.2	152.5	20 53.0 -55.4	152.7	19 59.6 -55.6	152.8	18 06.2 -55.8	153.0	18 12.7 -56.0	153.2	17 19.1 -56.1	153.3	16 25.5 -56.3	153.4	24										
25	21 44.4 -55.1	152.7	20 51.0 -55.3	152.9	19 57.6 -55.5	153.1	19 04.0 -55.6	153.2	18 10.4 -55.8	153.4	17 16.7 -56.0	153.5	16 23.0 -56.2	153.7	15 29.2 -56.4	153.8	25										
26	20 49.3 -55.1	153.2	19 55.7 -55.3	153.3	19 02.1 -55.5	153.5	18 08.4 -55.7	153.6	17 14.6 -55.9	153.8	16 20.7 -56.0	153.9	15 26.8 -56.2	154.0	14 32.8 -56.3	154.2	26										
27	19 54.2 -55.2	153.6	19 00.4 -55.4	153.7	18 06.6 -55.6	153.9	17 12.7 -55.8	154.0	16 18.7 -55.9	154.2	15 24.7 -56.1	154.3	14 30.6 -56.3	154.4	13 36.5 -56.5	154.5	27										
28	18 59.0 -55.2	154.0	18 05.0 -55.4	154.1	17 11.0 -55.6	154.3	16 16.9 -55.8	154.4	15 22.8 -56.0	154.5	14 28.6 -56.1	154.7	13 34.3 -56.2	154.8	12 40.0 -56.4	154.9	28										
29	18 03.8 -55.3	154.4	17 09.6 -55.5	154.5	16 15.4 -55.6	154.7	15 21.1 -55.8	154.8	14 26.8 -56.0	154.9	13 32.5 -56.2	155.0	12 38.1 -56.3	155.1	11 43.6 -56.4	155.2	29										
30	17 08.5 -55.4	154.8	16 14.1 -55.5	154.9	15 19.8 -55.7	155.1	14 25.3 -55.8	155.2	13 30.8 -56.0	155.3	12 36.3 -56.2	155.4	11 41.8 -56.4	155.5	10 47.2 -56.5	155.6	30										
31	16 13.1 -55.4	155.2	15 18.6 -55.5	155.3	14 24.1 -55.8	155.5	13 29.5 -55.9	155.6	12 34.8 -56.0	155.7	11 40.1 -56.2	155.7	10 45.4 -56.3	155.8	9 50.7 -56.5	155.9	31										
32	15 17.7 -55.4	155.6	14 23.1 -55.6	155.7	13 28.3 -55.7	155.8	12 33.6 -55.9	155.9	11 38.8 -56.1	156.0	10 43.9 -56.2	156.1	9 49.1 -56.4	156.2	8 54.2 -56.6	156.2	32										
33	14 22.3 -55.5	156.0	13 27.5 -55.7	156.1	12 32.6 -55.8	156.2	11 37.7 -56.0	156.3	10 42.7 -56.1	156.4	9 47.7 -56.2	156.4	8 52.7 -56.4	156.5	7 57.6 -56.5	156.6	33										
34	13 26.8 -55.5	156.4	12 31.8 -55.6	156.5	11 36.8 -55.8	156.6	10 41.7 -56.0	156.7	9 46.6 -56.1	156.7	8 51.5 -56.3	156.8	7 56.3 -56.4	156.9	7 01.1 -56.5	156.9	34										
35	12 31.3 -55.5	156.8	11 36.2 -55.7	156.9	10 41.0 -55.9	157.0	9 45.7 -56.0	157.0	8 50.5 -56.2	157.1	7 55.2 -56.3	157.2	6 59.9 -56.4	157.2	6 04.6 -56.6	157.2	35										
36	11 35.8 -55.6	157.2	10 40.5 -55.8	157.3	9 45.1 -55.9	157.3	8 49.7 -56.0	157.4	7 54.3 -56.1	157.5	6 58.9 -56.3	157.5	6 03.5 -56.5	157.5	5 08.0 -56.6	157.6	36										
37	10 40.2 -55.6	157.6	9 44.7 -55.7	157.6	8 49.2 -55.9	157.7	7 53.7 -56.0	157.8	6 58.2 -56.2	157.8	6 02.6 -56.3	157.9	5 07.0 -56.4	157.9	4 11.4 -56.6	157.9	37										
38	9 44.6 -55.6	158.0	8 49.0 -55.8	158.0	7 53.3 -55.9	158.1	6 57.7 -56.1	158.1	6 02.0 -56.2	158.2	5 06.3 -56.3	158.2	4 10.6 -56.5	158.5	3 14.8 -56.5	158.3	38										
39	8 49.0 -55.7	158.3	7 53.2 -55.8	158.4	6 57.4 -55.9	158.4	6 01.6 -56.1	158.5	5 05.8 -56.2	158.5	4 10.0 -56.4	158.5	3 14.1 -56.5	158.6	2 18.3 -56.6	158.6	39										
40	7 53.3 -55.6	158.7	6 57.4 -55.8	158.8	6 01.5 -56.0</td																						

29°, 331° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	38°			39°			40°			41°			42°			43°			44°			45°			Dec.
Dec.	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
0	43 34.1 +50.8	138.0		42 49.2 +51.4	138.6		42 04.0 +51.8	139.2		41 18.4 +52.3	139.8		40 32.4 +52.7	140.4		39 46.0 +53.1	140.9		38 59.2 +53.6	141.4		38 12.2 +53.9	141.9		0
1	44 24.9 +50.5	137.3		43 40.6 +51.1	137.9		42 55.8 +51.6	138.5		42 10.7 +52.0	139.1		41 25.1 +52.5	139.7		40 39.1 +53.0	140.3		39 52.8 +53.3	140.8		39 06.1 +53.7	141.3		1
2	45 15.4 +50.3	136.5		44 31.7 +50.8	137.2		43 47.4 +51.1	137.8		43 02.7 +51.8	138.5		42 17.6 +52.3	139.1		41 32.1 +52.7	139.7		40 46.1 +53.2	140.2		39 59.8 +53.6	140.8		2
3	46 05.7 +49.8	135.7		45 22.5 +50.4	136.4		44 38.7 +51.1	137.1		43 54.5 +51.6	137.8		43 09.9 +52.0	138.4		42 24.8 +52.5	139.0		41 39.3 +53.0	139.6		40 53.4 +53.4	140.2		3
4	46 55.6 +49.5	134.9		46 12.9 +50.2	135.7		45 29.8 +50.7	136.4		44 46.1 +51.3	137.1		44 01.9 +51.8	137.7		43 17.3 +52.3	138.4		42 32.3 +52.7	139.0		41 46.8 +53.2	139.6		4
5	47 45.1 +49.2	134.1		47 03.1 +49.8	134.9		46 20.5 +50.4	135.6		45 37.4 +51.0	136.3		44 53.7 +51.5	137.0		44 09.6 +52.0	137.7		43 25.0 +52.5	138.3		42 40.0 +52.9	138.9		5
6	48 34.3 +48.8	133.2		47 52.9 +49.5	134.0		47 10.9 +50.1	134.8		46 28.4 +50.6	135.6		45 45.2 +51.3	136.3		45 01.6 +51.8	137.0		44 17.5 +52.3	137.7		43 32.9 +52.8	138.3		6
7	49 23.1 +48.4	132.3		48 42.4 +49.0	133.2		48 01.0 +49.7	134.0		47 19.0 +50.4	134.8		46 36.5 +50.9	135.5		45 53.4 +51.5	136.3		45 09.8 +52.0	137.0		44 25.7 +52.5	137.6		7
8	50 11.5 +47.9	131.4		49 31.4 +48.7	132.3		48 50.7 +49.4	133.2		48 09.4 +50.0	134.0		47 27.4 +50.6	134.8		46 44.9 +51.2	135.5		46 01.8 +51.7	136.3		45 18.2 +52.3	137.0		8
9	50 59.4 +47.4	130.5		50 20.1 +48.2	131.4		49 40.1 +48.9	132.3		48 59.4 +49.6	133.1		48 18.0 +50.3	134.0		47 36.1 +50.4	134.8		46 53.5 +51.5	135.5		46 10.5 +52.0	136.3		9
10	51 46.8 +47.0	129.5		51 08.3 +47.7	130.5		50 29.0 +48.5	131.4		49 49.0 +49.2	132.3		49 08.3 +49.9	133.1		48 26.9 +50.6	134.0		47 45.0 +51.1	134.8		47 02.5 +51.7	135.5		10
11	52 33.8 +46.4	128.5		51 56.0 +47.3	129.5		51 17.5 +48.0	130.4		50 38.2 +48.8	131.4		49 58.2 +49.5	132.3		49 17.5 +50.2	133.1		48 36.1 +50.8	134.0		47 54.2 +51.4	134.8		11
12	53 20.2 +45.8	127.4		52 43.3 +46.7	128.5		52 05.5 +47.6	129.5		51 27.0 +48.3	130.5		50 47.7 +49.1	131.4		50 07.7 +49.7	132.3		49 26.9 +50.5	133.2		48 45.6 +51.1	134.0		12
13	54 06.0 +45.2	126.3		53 30.0 +46.1	127.4		52 53.1 +47.0	128.5		51 15.3 +47.9	129.5		51 36.8 +48.6	130.5		50 57.4 +49.4	131.4		50 17.4 +50.1	132.3		49 36.7 +50.7	133.2		13
14	54 51.2 +44.5	125.2		54 16.1 +45.5	126.3		53 40.1 +46.5	127.4		53 03.2 +47.3	128.5		52 25.4 +48.2	129.5		51 46.8 +49.0	130.5		51 07.5 +49.7	131.5		50 27.4 +50.4	132.4		14
15	55 35.7 +43.9	124.0		55 01.6 +44.9	125.2		54 26.6 +45.8	126.4		53 50.5 +46.8	127.5		53 13.6 +47.6	128.5		52 35.8 +48.5	129.6		51 57.2 +49.2	130.6		51 17.8 +50.0	131.5		15
16	56 19.6 +43.1	122.8		55 46.5 +44.2	124.0		55 12.4 +45.2	125.2		54 37.3 +46.2	126.4		54 01.2 +47.1	127.5		53 24.3 +47.8	128.6		52 46.4 +48.8	129.6		52 07.8 +49.5	130.6		16
17	57 02.7 +42.3	121.5		56 30.7 +43.5	122.8		55 57.6 +44.6	124.1		55 23.5 +45.6	125.3		54 48.3 +46.6	126.4		54 12.2 +47.5	127.6		53 35.2 +48.3	128.6		52 57.3 +49.1	129.7		17
18	57 45.0 +41.5	120.2		57 14.2 +42.7	121.6		56 42.2 +43.8	122.9		56 09.1 +44.9	124.1		55 34.9 +45.9	125.3		54 59.7 +46.3	126.5		54 23.5 +47.8	127.6		53 46.4 +48.6	128.7		18
19	58 26.5 +40.5	118.9		57 56.9 +41.8	120.3		57 26.0 +43.0	121.6		56 54.0 +44.1	122.9		56 20.8 +45.2	124.2		55 46.6 +47.4	125.4		55 11.3 +47.2	126.6		54 35.0 +48.2	127.7		19
20	59 07.0 +39.6	117.4		58 38.7 +40.9	118.9		58 09.0 +42.2	120.3		57 38.1 +43.4	121.7		57 06.0 +44.6	123.0		56 32.8 +45.6	124.3		55 58.5 +46.6	125.5		55 23.2 +47.5	126.7		20
21	59 46.6 +38.4	116.0		59 19.6 +40.0	117.5		58 51.2 +41.3	118.9		58 21.5 +42.6	120.4		57 50.6 +43.8	121.7		57 18.4 +44.2	123.1		56 45.1 +46.0	124.4		56 10.7 +47.0	125.6		21
22	60 25.1 +37.4	114.4		59 59.6 +38.9	116.0		59 32.5 +40.4	117.5		59 04.1 +41.7	119.0		58 34.4 +42.9	120.4		58 03.3 +44.2	121.8		57 31.1 +45.3	123.2		56 57.7 +46.3	124.5		22
23	61 02.5 +36.3	112.8		60 38.5 +37.8	114.5		60 12.9 +39.3	116.1		59 45.8 +40.7	117.6		59 17.3 +42.1	119.1		58 47.5 +43.3	120.5		58 16.4 +44.5	121.9		57 44.0 +45.7	123.3		23
24	61 38.8 +35.0	111.2		61 16.3 +36.7	112.9		60 52.2 +38.2	114.5		60 26.5 +39.8	116.1		59 59.4 +41.1	117.7		59 30.8 +42.5	119.2		59 00.9 +43.7	120.7		58 29.7 +44.9	122.1		24
25	62 13.8 +33.7	109.4		61 53.0 +35.4	111.2		61 30.4 +37.1	112.9		61 06.3 +38.6	114.6		60 40.5 +40.1	116.2		60 13.3 +41.5	117.8		59 44.6 +42.9	119.3		59 14.6 +44.1	120.8		25
26	62 47.5 +32.2	107.6		62 28.4 +34.0	109.5		62 07.5 +35.8	111.3		61 44.9 +37.5	113.0		61 20.6 +39.1	114.7		60 54.8 +40.6	116.3		60 27.5 +41.9	117.9		59 58.7 +43.3	119.4		26
27	63 19.7 +30.7	105.8		63 02.4 +32.7	107.7		62 43.3 +34.5	109.5		62 22.4 +36.2	111.3		61 59.7 +37.9	113.1		61 35.4 +39.4	114.8		61 09.4 +41.0	116.4		60 42.0 +42.3	118.0		27
28	63 50.4 +29.2	103.8		63 35.1 +31.1	105.8		63 17.8 +33.0	107.7		62 58.6 +34.9	109.6		62 37.6 +36.6	111.4		62 14.8 +38.3	113.2		61 50.4 +39.8	114.9		61 24.3 +41.4	116.6		28
29	64 19.6 +27.4	101.8		64 06.2 +29.5	103.9		63 50.8 +31.6	105.8		63 33.5 +33.5	107.8		63 14.2 +35.3	109.7		62 53.1 +37.1	111.5		62 30.2 +38.8	113.3		62 05.7 +40.3	115.0		29
30	64 47.0 +25.7	99.8		64 35.7 +27.9	101.9		64 22.4 +29.9	103.9		64 07.0 +31.9	105.9		63 49.5 +33.9	107.9		63 30.2 +35.7	109.8		63 09.0 +37.5	111.6		62 46.0 +39.1	113.4		30
31	65 12.7 +23.7	97.6		65 03.6 +26.0	99.8		64 52.3 +28.2	101.9		64 38.9 +30.3	103.9		64 23.4 +32.4	105.0		64 05.9 +34.3	107.9		63 46.5 +36.1	109.9		63 25.1 +38.0	111.8		31
32	65 36.4 +21.8	95.4		65 29.6 +24.6	97.6		65 20.5 +26.4	99.8		65 09.2 +28.7	101.9		64 55.8 +30.7	104.0		64 40.2 +32.8	106.1		64 22.6 +34.8	108.1		64 03.1 +36.6	110.0		32
33	65 58.2 +19.7	93.2		65 53.7 +20.9	95.4		65 46.9 +22.0	97.6		65 37.9 +26.8	99.8		65 26.5 +29.1	102.0		65 13.0 +31.2	104.1		64 57.4 +33.2	106.2		64 39.7 +35.2	108.2		33
34	66 17.9 +8.3	90.8		67 45.7 -6.9	64.9		68 10.1 -4.4	67.2		68 29.2 -18.6	67.2		68 52.0 +0.9	67.2		69 09.3 +3.7	74.5		69 24.1 +6.6	77.0		69 36.3 +9.4	79.6		45
35	66 35.9 +15.3*	88.4		66 35.9 +17.9	90.7		66 34.0 +20.3	93.0		66 29.6 +22.8	95.3		66 22.8 +25.3	97.6		66 13.7 +27.6	99.9		66 02.2 +29.9	102.1		65 48.5 +32.1	104.3		35
36	66 50.8 +13.0*	86.0		66 53.8 +15.6	88.3		66 54.3 +18.2	90.7		66 52.4 +20.7	93.0		66 48.1 +23.2	95.3		66 41.3 +25.6	97.7								

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 29°, 331°

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.	
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z											
0	43 34.1 -51.2 138.0	42 49.2 -51.6 138.6		42 04.0 -52.1 139.2	41 18.4 -52.5 139.8		40 32.4 -53.0 140.4	39 46.0 -53.4 140.9		38 59.2 -53.7 141.4	38 12.2 -54.1 141.9		0	43 34.1 -51.2 138.0	42 49.2 -51.6 138.6		42 04.0 -52.1 139.2	41 18.4 -52.5 139.8		40 32.4 -53.0 140.4	39 46.0 -53.4 140.9		38 59.2 -53.7 141.4	38 12.2 -54.1 141.9		0
1	42 42.9 -51.3 138.7	41 57.6 -51.8 139.3		41 11.9 -52.2 139.9	40 25.9 -52.7 140.4		39 39.4 -53.1 141.0	38 52.6 -53.5 141.5		38 05.5 -53.8 142.0	37 18.1 -54.2 142.5		1	42 42.9 -51.3 138.7	41 57.6 -51.8 139.3		41 11.9 -52.2 139.9	40 25.9 -52.7 140.4		39 39.4 -53.1 141.0	38 52.6 -53.5 141.5		38 05.5 -53.8 142.0	37 18.1 -54.2 142.5		1
2	41 51.6 -51.7 139.4	41 05.8 -52.1 140.0		40 19.7 -52.5 140.5	39 33.2 -53.0 141.1		38 46.3 -53.3 141.6	37 59.1 -53.6 142.1		37 11.7 -54.1 142.5	36 23.9 -54.4 143.0		2	41 51.6 -51.7 139.4	41 05.8 -52.1 140.0		40 19.7 -52.5 140.5	39 33.2 -53.0 141.1		38 46.3 -53.3 141.6	37 59.1 -53.6 142.1		37 11.7 -54.1 142.5	36 23.9 -54.4 143.0		2
3	40 59.9 -51.8 140.1	40 13.7 -52.3 140.6		39 27.2 -52.8 141.2	38 40.2 -53.1 141.7		37 53.0 -53.5 142.2	37 05.5 -53.8 142.6		36 17.6 -54.1 143.1	35 29.5 -54.4 143.5		3	40 59.9 -51.8 140.1	40 13.7 -52.3 140.6		39 27.2 -52.8 141.2	38 40.2 -53.1 141.7		37 53.0 -53.5 142.2	37 05.5 -53.8 142.6		36 17.6 -54.1 143.1	35 29.5 -54.4 143.5		3
4	40 08.1 -52.1 140.8	39 21.4 -52.5 141.3		38 34.4 -52.8 141.8	37 47.1 -53.2 142.3		36 59.5 -53.6 142.7	36 11.7 -54.0 143.2		35 23.5 -54.3 143.6	34 35.1 -54.7 144.0		4	40 08.1 -52.1 140.8	39 21.4 -52.5 141.3		38 34.4 -52.8 141.8	37 47.1 -53.2 142.3		36 59.5 -53.6 142.7	36 11.7 -54.0 143.2		35 23.5 -54.3 143.6	34 35.1 -54.7 144.0		4
5	39 16.0 -52.3 141.4	38 28.9 -52.7 141.9		37 41.6 -53.1 142.4	36 53.9 -53.5 142.8		36 05.9 -53.8 143.3	35 17.7 -54.1 143.7		34 29.2 -54.4 144.1	33 40.4 -54.7 144.5		5	39 16.0 -52.3 141.4	38 28.9 -52.7 141.9		37 41.6 -53.1 142.4	36 53.9 -53.5 142.8		36 05.9 -53.8 143.3	35 17.7 -54.1 143.7		34 29.2 -54.4 144.1	33 40.4 -54.7 144.5		5
6	38 23.7 -52.5 142.0	37 36.2 -52.8 142.5		36 48.5 -53.2 143.0	36 00.4 -53.5 143.4		35 12.1 -53.9 143.8	34 23.6 -54.3 144.2		33 34.8 -54.6 144.6	32 45.7 -54.8 145.0		6	38 23.7 -52.5 142.0	37 36.2 -52.8 142.5		36 48.5 -53.2 143.0	36 00.4 -53.5 143.4		35 12.1 -53.9 143.8	34 23.6 -54.3 144.2		33 34.8 -54.6 144.6	32 45.7 -54.8 145.0		6
7	37 31.2 -52.7 142.6	36 43.4 -53.1 143.1		35 55.3 -53.4 143.5	35 06.9 -53.8 144.0		34 18.2 -54.0 144.4	33 29.3 -54.3 144.8		32 40.2 -54.7 145.1	31 50.9 -55.0 145.5		7	37 31.2 -52.7 142.6	36 43.4 -53.1 143.1		35 55.3 -53.4 143.5	35 06.9 -53.8 144.0		34 18.2 -54.0 144.4	33 29.3 -54.3 144.8		32 40.2 -54.7 145.1	31 50.9 -55.0 145.5		7
8	36 38.5 -52.8 143.2	35 50.3 -53.2 143.7		35 01.9 -53.6 144.1	34 13.1 -53.8 144.5		33 24.2 -54.2 144.9	32 35.0 -54.5 145.3		31 45.5 -54.7 145.6	30 55.9 -55.0 146.0		8	36 38.5 -52.8 143.2	35 50.3 -53.2 143.7		35 01.9 -53.6 144.1	34 13.1 -53.8 144.5		33 24.2 -54.2 144.9	32 35.0 -54.5 145.3		31 45.5 -54.7 145.6	30 55.9 -55.0 146.0		8
9	35 45.7 -53.0 143.8	34 57.1 -53.3 144.3		34 08.3 -53.7 144.7	33 19.3 -54.1 145.0		32 30.0 -54.3 145.4	31 40.5 -54.6 145.8		30 50.8 -55.2 146.1	29 00.9 -55.2 146.9		9	35 45.7 -53.0 143.8	34 57.1 -53.3 144.3		34 08.3 -53.7 144.7	33 19.3 -54.1 145.0		32 30.0 -54.3 145.4	31 40.5 -54.6 145.8		30 50.8 -55.2 146.1	29 00.9 -55.2 146.9		9
10	34 52.7 -53.2 144.4	34 03.8 -53.5 144.8		33 14.6 -53.8 145.2	32 25.2 -54.1 145.6		31 35.7 -54.5 145.9	30 45.9 -54.7 146.2		29 55.9 -55.0 146.6	28 05.7 -55.2 146.9		10	34 52.7 -53.2 144.4	34 03.8 -53.5 144.8		33 14.6 -53.8 145.2	32 25.2 -54.1 145.6		31 35.7 -54.5 145.9	30 45.9 -54.7 146.2		29 55.9 -55.0 146.6	28 05.7 -55.2 146.9		10
11	33 59.5 -53.3 145.0	33 10.3 -53.7 145.4		32 20.8 -54.0 145.7	31 31.1 -54.2 146.1		30 41.2 -54.5 146.4	29 51.2 -54.8 146.7		28 09.9 -55.1 147.0	28 10.5 -55.3 147.3		11	33 59.5 -53.3 145.0	33 10.3 -53.7 145.4		32 20.8 -54.0 145.7	31 31.1 -54.2 146.1		30 41.2 -54.5 146.4	29 51.2 -54.8 146.7		28 09.9 -55.1 147.0	28 10.5 -55.3 147.3		11
12	33 06.2 -53.5 145.5	32 16.6 -53.8 145.9		31 26.8 -54.0 146.2	30 36.9 -54.4 146.6		29 46.7 -54.6 146.9	28 56.4 -54.9 147.2		28 05.8 -55.1 147.5	27 15.2 -55.4 147.8		12	33 06.2 -53.5 145.5	32 16.6 -53.8 145.9		31 26.8 -54.0 146.2	30 36.9 -54.4 146.6		29 46.7 -54.6 146.9	28 56.4 -54.9 147.2		28 05.8 -55.1 147.5	27 15.2 -55.4 147.8		12
13	32 12.7 -53.6 146.1	31 22.8 -53.9 146.4		30 32.8 -54.2 146.7	29 42.5 -54.5 147.1		28 52.1 -54.8 147.4	28 01.5 -55.0 147.6		27 10.7 -55.2 147.9	26 19.8 -55.5 148.2		13	32 12.7 -53.6 146.1	31 22.8 -53.9 146.4		30 32.8 -54.2 146.7	29 42.5 -54.5 147.1		28 52.1 -54.8 147.4	28 01.5 -55.0 147.6		27 10.7 -55.2 147.9	26 19.8 -55.5 148.2		13
14	31 19.1 -53.7 146.6	30 28.9 -54.0 146.9		29 38.6 -54.3 147.2	28 48.0 -54.5 147.5		27 57.3 -54.8 147.8	27 06.5 -55.1 148.1		26 15.5 -55.4 148.4	25 24.3 -55.5 148.6		14	31 19.1 -53.7 146.6	30 28.9 -54.0 146.9		29 38.6 -54.3 147.2	28 48.0 -54.5 147.5		27 57.3 -54.8 147.8	27 06.5 -55.1 148.1		26 15.5 -55.4 148.4	25 24.3 -55.5 148.6		14
15	30 25.4 -53.9 147.1	29 34.9 -54.1 147.4		28 44.3 -54.4 147.7	27 53.5 -54.7 148.0		27 02.5 -54.9 148.3	26 11.4 -55.2 148.5		25 20.1 -55.4 148.8	24 28.8 -55.7 149.0		15	30 25.4 -53.9 147.1	29 34.9 -54.1 147.4		28 44.3 -54.4 147.7	27 53.5 -54.7 148.0		27 02.5 -54.9 148.3	26 11.4 -55.2 148.5		25 20.1 -55.4 148.8	24 28.8 -55.7 149.0		15
16	29 31.5 -53.9 147.6	28 40.8 -54.3 147.9		27 49.9 -54.5 148.2	26 58.8 -54.8 148.5		26 07.6 -55.0 148.7	25 16.2 -55.2 149.0		24 24.7 -55.4 149.2	23 33.1 -55.6 149.4		16	29 31.5 -53.9 147.6	28 40.8 -54.3 147.9		27 49.9 -54.5 148.2	26 58.8 -54.8 148.5		25 07.6 -55.0 148.7	25 16.2 -55.2 149.0		24 24.7 -55.4 149.2	23 33.1 -55.6 149.4		16
17	28 37.6 -54.1 148.1	27 46.5 -54.3 148.4		26 55.4 -54.6 148.7	26 04.0 -54.8 148.9		25 12.6 -56.1 149.2	24 21.0 -55.3 149.4		23 29.3 -55.5 149.6	22 37.5 -55.8 149.8		17	28 37.6 -54.1 148.1	27 46.5 -54.3 148.4		26 55.4 -54.6 148.7	26 04.0 -54.8 148.9		25 12.6 -56.1 149.2	24 21.0 -55.3 149.4		23 29.3 -55.5 149.6	22 37.5 -55.8 149.8		17
18	27 43.5 -54.2 148.6	26 52.2 -54.4 148.9		26 00.8 -54.7 149.1	25 09.2 -54.9 149.4		24 17.5 -55.1 149.6	23 25.7 -55.4 149.8		22 33.8 -55.6 150.0	21 41.7 -55.8 150.2		18	27 43.5 -54.2 148.6	26 52.2 -54.4 148.9		26 00.8 -54.7 149.1	25 09.2 -54.9 149.4		24 17.5 -55.1 149.6	23 25.7 -55.4 149.8		22 33.8 -55.6 150.0	21 41.7 -55.8 150.2		18
19	26 49.3 -54.2 149.1	25 57.8 -54.5 149.3		25 06.1 -54.8 149.6	24 14.3 -55.0 149.8		23 22.4 -55.3 150.0	22 30.3 -55.4 150.3		21 38.2 -55.6 150.2	20 45.9 -56.0 150.5		19	26 49.3 -54.2 149.1	25 57.8 -54.5 149.3		25 06.1 -54.8 149.6	24 14.3 -55.0 149.8		23 22.4 -55.3 150.0	22 30.3 -55.4 150.3		21 38.2 -55.6 150.2	20 45.9 -56.0 150.5		19
20	25 55.1 -54.4 149.6	25 03.3 -54.7 149.8		24 11.3 -54.8 150.0	23 22.1 -55.1 150.3		22 27.1 -55.2 150.5	21 31.9 -55.4 150.9		20 39.4 -55.6 151.1	19 46.8 -55.7 151.2		21	25 55.1 -54.4 149.6	25 03.3 -54.7 149.8		24 11.3 -54.8 150.0	23 22.1 -55.1 150.3		22 27.1 -55.2 150.5	21 31.9 -55.4 150.9		20 39.4 -55.6 151.1	19 46.8 -55.7 151.2		21
21	25 00.7 -54.5 150.0	24 08.6 -54.6 150.3		23 16.5 -54.9 150.5	22 24.2 -55.1 150.7		21 31.9 -55.4 151.1	20 39.4 -55.6 151.5		19 46.8 -55.7 151.7	18 54.2 -56.0 151.8		22	25 00.7 -54.5 150.0	24 08.6 -54.6 150.3		23 16.5 -54.9 150.5	22 24.2 -55.1 150.7		21 31.9 -55.4 151.1	20 39.4 -55.6 151.5		19 46.8 -55.7 151.7	18 54.2 -56.0 151.8		22
22	24 06.2 -54.5 150.5	23 14.0 -54.8 150.7		22 21.6 -55.0 150.9	21 29.1 -55.2 151.1		20 36.5 -55.4 151.5	19 43.8 -55.6 151.8		18 51.1 -55.8 152.0	17 58.2 -56.0 152.1		23	24 06.2 -54.5 150.5	23 14.0 -54.8 150.7		22 21.6 -55.0 150.9	21 29.1 -55.2 151.1		20 36.5 -55.4 151.5	19 43.8 -55.6 151.8		18 51.1 -55.8 152.0	17 58.2 -56.0 152.1</td		

30°, 330° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.								
	H	c	d	Z	H	c	d	Z	H	c	d	Z	H	c	d	Z	H	c	d	Z	H	c	d	Z									
0	43	02.1	+50.4	136.8	42	18.1	+50.9	137.5	41	33.6	+51.5	138.1	40	48.8	+51.9	138.7	40	03.6	+52.3	139.2	39	18.0	+52.7	139.8	38	32.0	+53.2	140.3	37	45.7	+53.6	140.8	0
1	43	52.5	+50.0	136.1	43	09.0	+50.6	136.7	42	25.1	+51.1	137.4	41	40.7	+51.7	138.0	40	55.9	+52.1	138.6	40	10.7	+52.6	139.1	39	25.2	+53.0	139.7	38	39.3	+53.4	140.2	1
2	44	42.5	+49.8	135.3	43	59.6	+50.4	136.0	43	16.2	+50.9	136.7	42	32.4	+51.4	137.3	41	48.0	+51.9	137.9	41	03.3	+52.4	138.5	40	18.2	+52.8	139.1	39	32.7	+53.2	139.6	2
3	45	32.3	+49.5	134.5	44	50.0	+50.0	135.2	44	07.1	+50.6	135.9	43	23.8	+51.1	136.6	42	39.9	+51.7	137.2	41	55.7	+52.1	137.8	41	11.0	+52.6	138.4	40	25.9	+53.0	139.0	3
4	46	21.8	+49.0	133.7	45	40.0	+49.7	134.5	44	57.7	+50.3	135.2	44	14.9	+50.9	135.9	43	31.6	+51.4	136.5	42	47.8	+51.9	137.2	42	03.6	+52.4	137.8	41	18.9	+52.9	138.4	4
5	47	10.8	+48.7	132.9	46	29.7	+49.4	133.7	45	48.0	+50.0	134.4	45	05.8	+50.5	135.1	44	23.0	+51.1	135.8	43	39.7	+51.7	136.5	42	56.0	+52.1	137.1	42	11.8	+52.6	137.8	5
6	47	59.5	+48.3	132.0	47	19.1	+48.9	132.8	46	38.0	+49.6	133.6	45	56.3	+50.2	134.4	45	14.1	+50.8	135.1	44	31.4	+51.3	135.8	43	48.1	+51.9	136.5	43	04.4	+52.4	137.1	6
7	48	47.8	+47.9	131.1	48	08.0	+48.6	132.0	47	27.6	+49.3	132.8	46	46.5	+49.9	133.6	46	04.9	+50.5	134.3	45	22.7	+51.1	135.0	44	40.0	+51.6	135.8	43	56.8	+52.1	136.4	7
8	49	35.7	+47.4	130.2	48	56.6	+48.2	131.1	48	16.9	+48.8	131.9	47	36.4	+49.6	132.7	46	55.4	+50.2	133.5	46	13.8	+50.8	134.3	45	31.6	+51.4	135.0	44	48.9	+51.9	135.7	8
9	50	23.1	+46.8	129.2	49	44.8	+47.7	130.2	49	05.7	+48.5	131.0	48	26.0	+49.1	131.9	47	45.6	+49.8	132.7	47	04.6	+50.4	133.5	46	23.0	+51.0	134.3	45	40.8	+51.6	135.0	9
10	51	10.0	+46.4	128.3	50	32.5	+47.2	129.2	49	54.2	+48.0	130.1	49	15.1	+48.8	131.0	48	35.4	+49.5	131.9	47	55.0	+50.1	132.7	47	14.0	+50.7	133.5	46	32.4	+51.3	134.3	10
11	51	56.4	+45.9	127.2	51	19.7	+46.7	128.2	50	42.2	+47.5	129.2	50	03.9	+48.3	130.1	49	24.9	+49.0	131.0	48	45.1	+49.8	131.9	48	04.7	+50.4	132.7	47	23.7	+51.0	133.5	11
12	52	42.3	+45.3	126.2	52	06.4	+46.2	127.2	51	29.7	+47.1	128.2	50	52.2	+47.9	129.2	50	13.9	+48.6	130.1	49	34.9	+49.3	131.0	48	55.1	+50.1	131.9	48	14.7	+50.7	132.7	12
13	53	27.6	+44.7	125.1	52	52.6	+45.7	126.2	52	16.8	+46.5	127.2	51	40.1	+47.3	128.2	51	02.5	+48.2	129.2	50	24.2	+48.9	130.1	49	45.2	+49.6	131.1	49	05.4	+50.3	131.9	13
14	54	12.3	+44.0	124.0	53	38.3	+45.0	125.1	53	03.3	+45.9	126.2	52	27.4	+46.9	127.2	51	50.7	+47.7	128.3	51	13.1	+48.5	129.2	50	55.7	+50.0	131.1	49	55.7	+50.0	131.1	14
15	54	56.3	+43.3	122.8	54	23.3	+44.3	124.0	53	49.2	+45.4	125.1	53	14.3	+46.3	126.2	52	38.4	+47.2	127.3	52	01.6	+48.0	128.3	51	24.1	+48.8	129.3	50	45.7	+49.5	130.2	15
16	55	39.6	+42.5	121.6	55	07.6	+43.7	122.8	54	34.6	+44.7	124.0	54	00.6	+45.7	125.1	53	25.6	+46.6	126.2	52	49.6	+47.6	127.3	52	12.9	+48.3	128.3	51	35.2	+49.2	129.3	16
17	56	22.1	+41.8	120.3	55	13.1	+42.9	121.6	55	19.3	+44.0	122.8	54	46.3	+45.0	124.0	54	12.2	+46.0	125.2	53	37.2	+46.9	126.3	53	01.2	+47.8	127.4	52	24.4	+48.6	128.4	17
18	57	03.9	+40.9	119.0	56	34.2	+42.1	120.3	56	03.3	+43.3	121.6	55	31.3	+44.4	122.9	54	58.2	+45.4	124.1	54	24.1	+46.4	125.2	53	49.0	+47.3	126.3	53	13.0	+48.2	127.4	18
19	57	44.8	+40.4	117.6	57	16.3	+41.3	119.0	56	46.6	+42.5	120.4	56	15.7	+43.6	121.7	55	43.6	+44.8	122.9	55	10.5	+45.4	124.1	54	36.3	+46.8	125.3	54	01.2	+47.6	126.4	19
20	58	24.8	+39.0	116.2	57	57.6	+40.4	117.7	57	29.1	+41.7	119.1	56	59.3	+42.9	120.4	56	28.4	+44.0	121.7	55	56.3	+45.1	123.0	55	23.1	+46.1	124.2	54	48.8	+47.1	125.4	20
21	59	03.8	+38.1	114.8	58	38.0	+39.4	116.3	58	10.8	+40.8	117.7	57	42.2	+42.1	119.1	57	12.4	+43.3	120.5	56	41.4	+44.4	121.8	56	09.2	+45.5	123.1	55	35.9	+46.5	124.3	21
22	59	41.9	+36.9	113.2	59	17.4	+38.4	114.8	58	51.6	+39.8	116.3	58	24.3	+41.1	117.8	57	55.7	+42.4	119.2	57	25.8	+43.6	120.6	56	54.7	+44.8	121.9	56	22.4	+45.9	123.2	22
23	60	18.8	+35.7	111.7	59	55.8	+37.4	113.3	59	31.4	+38.8	114.8	59	05.4	+40.3	116.4	58	38.1	+41.6	117.8	58	09.4	+42.9	119.3	57	39.5	+44.0	120.6	57	08.3	+45.1	122.0	23
24	60	54.5	+34.6	110.0	60	33.2	+36.1	111.7	60	10.2	+37.7	113.3	59	45.7	+39.2	114.9	59	19.7	+40.6	116.4	58	52.3	+41.9	117.9	57	53.4	+44.5	120.8	24				
25	61	29.1	+33.2	108.3	61	09.3	+35.0	110.1	60	47.9	+36.6	111.7	60	24.9	+38.1	113.4	60	00.3	+39.6	115.0	59	34.2	+41.1	116.5	59	06.7	+42.4	118.0	58	37.9	+43.6	119.5	25
26	62	02.3	+31.4	106.6	61	44.3	+33.6	108.4	61	24.5	+35.3	110.1	61	03.0	+37.0	111.8	60	39.9	+38.6	113.5	60	15.3	+40.2	115.1	59	49.1	+41.5	116.6	58	21.5	+42.8	118.1	26
27	62	34.1	+30.3	104.8	62	17.9	+32.2	106.6	61	59.8	+34.1	108.4	61	40.0	+35.8	110.2	61	18.5	+37.4	111.9	60	55.3	+39.0	113.6	60	30.6	+40.4	115.2	59	45.6	+47.3	118.8	27
28	63	64.4	+28.8	102.9	62	50.1	+30.8	104.8	62	33.9	+32.6	106.6	62	15.8	+34.4	108.5	61	55.9	+36.2	110.2	61	11.0	+39.4	113.7	60	46.1	+40.9	115.3	59	34.0	+33.3	105.2	28
29	63	33.2	+27.3	100.9	63	20.9	+29.1	102.8	62	50.5	+31.2	104.7	62	17.7	+35.4	106.3	62	31.2	+34.9	108.5	62	12.1	+36.6	110.3	61	50.4	+38.3	112.1	61	27.0	+39.9	113.8	29
30	64	60.0	+27.6	98.9	65	49.3	+17.9	90.1	65	48.0	+20.4	92.3	65	44.4	+22.8	94.5	65	38.5	+25.1	96.7	65	30.4	+27.3	98.9	65	19.9	+29.6	101.1	65	07.3	+31.7	103.2	30
31	66	03.7	+13.2	85.5	66	07.2	+15.7	87.8	66	08.4	+18.2	90.0	66	07.2	+20.7	92.3	66	03.6	+23.1	94.5	65	57.7	+25.5	96.8	65	49.5	+27.8	99.0	65	39.0	+30.0	101.2	31
32	66	16.9	+10.9	83.1	66	22.9	+13.5	85.4	66	26.6	+16.0	87.7	66	27.9	+18.5	89.9	66	26.7	+21.1	92.2	66	23.2	+23.5	94.5	66	17.3	+25.9	96.					

LATITUDE CONTRARY NAME TO DECLINATION **L.H.A. 30°, 330°**

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z			
0	43 02.1 -50.7	136.8	42 18.1 -51.2	137.5	41 33.6 -51.6	138.1	40 48.8 -52.1	138.7	40 03.6 -52.6	139.2	39 18.0 -53.0	139.8	38 32.0 -53.4	140.3	37 45.7 -53.8	140.8	37 45.7 -53.8	140.8	36 51.9 -53.9	141.3	36 51.9 -53.9	141.3	35 58.0 -54.0	141.9	35 58.0 -54.0	141.9	0
1	42 11.4 -51.0	137.6	41 26.9 -51.4	138.2	40 42.0 -51.9	138.7	39 56.7 -52.3	139.3	39 11.0 -52.7	139.8	38 25.0 -53.2	140.4	37 38.6 -53.5	140.8	36 45.1 -53.7	141.4	35 58.0 -54.0	141.9	35 57.1 -53.6	141.9	35 57.1 -53.6	141.9	34 50.4 -54.2	142.4	34 50.4 -54.2	142.4	1
2	41 20.4 -51.2	138.3	40 35.5 -51.7	138.8	39 50.1 -52.1	139.4	39 04.4 -52.6	139.9	38 18.3 -53.0	140.4	37 31.8 -53.3	140.9	36 45.1 -53.7	141.4	35 58.0 -54.0	142.0	35 51.4 -53.9	142.0	35 50.4 -54.2	142.4	35 50.4 -54.2	142.4	34 57.5 -53.9	142.5	34 57.5 -53.9	142.5	2
3	40 29.2 -51.4	139.0	39 43.8 -51.9	139.5	38 58.0 -52.3	140.0	38 11.8 -52.7	140.6	37 25.3 -53.1	141.0	36 38.5 -53.5	141.5	35 51.4 -53.9	142.0	34 57.5 -53.9	142.5	34 09.8 -54.3	142.9	34 09.8 -54.3	142.9	34 09.8 -54.3	142.9	34 09.8 -54.3	142.9	34 09.8 -54.3	142.9	4
4	39 37.8 -51.7	139.6	38 51.9 -52.1	140.2	38 05.7 -52.5	140.7	37 19.1 -52.9	141.2	36 32.2 -53.3	141.6	35 45.0 -53.6	142.1	34 57.5 -53.9	142.5	34 09.8 -54.3	142.9	34 09.8 -54.3	142.9	34 09.8 -54.3	142.9	34 09.8 -54.3	142.9	34 09.8 -54.3	142.9	34 09.8 -54.3	142.9	4
5	38 46.1 -51.8	140.3	37 59.8 -52.3	140.8	37 13.2 -52.7	141.3	36 26.2 -53.1	141.7	35 38.9 -53.4	142.2	34 51.4 -53.8	142.6	34 03.6 -54.2	143.0	33 15.5 -54.4	143.4	33 15.5 -54.4	143.4	33 15.5 -54.4	143.4	33 15.5 -54.4	143.4	33 15.5 -54.4	143.4	33 15.5 -54.4	143.4	5
6	37 54.3 -52.1	140.9	37 07.5 -52.5	141.4	36 20.5 -52.9	141.9	35 33.1 -53.2	142.3	34 45.5 -53.6	142.8	33 57.6 -53.9	143.2	33 09.4 -54.2	143.6	32 21.1 -54.6	143.9	32 21.1 -54.6	143.9	32 21.1 -54.6	143.9	32 21.1 -54.6	143.9	32 21.1 -54.6	143.9	32 21.1 -54.6	143.9	6
7	37 02.2 -52.3	141.6	36 15.0 -52.6	142.0	35 27.6 -53.0	142.5	34 39.9 -53.4	142.9	33 51.9 -53.7	143.3	33 03.7 -54.1	143.7	32 15.2 -54.4	144.1	31 26.5 -54.6	144.4	31 26.5 -54.6	144.4	31 26.5 -54.6	144.4	31 26.5 -54.6	144.4	31 26.5 -54.6	144.4	31 26.5 -54.6	144.4	7
8	36 09.9 -52.5	142.2	35 22.4 -52.8	142.6	34 34.6 -53.2	143.0	33 46.5 -53.5	143.4	32 58.2 -53.9	143.8	32 09.6 -54.2	144.2	31 20.8 -54.4	144.6	30 31.9 -54.8	144.9	30 31.9 -54.8	144.9	30 31.9 -54.8	144.9	30 31.9 -54.8	144.9	30 31.9 -54.8	144.9	30 31.9 -54.8	144.9	8
9	35 17.4 -52.6	142.8	34 29.5 -53.0	143.2	33 41.4 -53.4	143.6	32 53.0 -53.7	144.0	32 04.3 -54.0	144.4	31 15.4 -54.2	144.7	30 26.4 -54.6	145.1	29 37.1 -54.9	145.4	29 37.1 -54.9	145.4	29 37.1 -54.9	145.4	29 37.1 -54.9	145.4	29 37.1 -54.9	145.4	9		
10	34 24.8 -52.8	143.4	33 36.5 -53.1	143.8	32 48.0 -53.4	144.1	31 59.3 -53.8	144.5	31 10.3 -54.1	144.9	30 21.2 -54.4	145.2	29 31.8 -54.7	145.5	28 42.2 -54.9	145.8	28 42.2 -54.9	145.8	28 42.2 -54.9	145.8	28 42.2 -54.9	145.8	28 42.2 -54.9	145.8	10		
11	33 32.0 -52.9	143.9	32 43.4 -53.3	144.3	31 54.6 -53.7	144.7	31 05.5 -53.9	145.0	30 16.2 -54.2	145.4	29 26.8 -54.5	145.7	28 37.1 -54.8	146.0	27 47.3 -55.1	146.3	27 47.3 -55.1	146.3	27 47.3 -55.1	146.3	27 47.3 -55.1	146.3	27 47.3 -55.1	146.3	11		
12	32 39.1 -53.1	144.5	31 50.1 -53.4	144.9	30 09.9 -53.7	145.2	30 11.6 -54.1	145.5	29 22.0 -54.3	145.9	28 32.3 -54.6	146.2	27 42.3 -54.8	146.5	26 52.2 -55.1	146.8	26 52.2 -55.1	146.8	26 52.2 -55.1	146.8	26 52.2 -55.1	146.8	26 52.2 -55.1	146.8	12		
13	31 46.0 -53.3	145.0	30 56.7 -53.6	145.4	30 07.2 -53.8	145.7	29 17.5 -54.1	146.0	28 27.7 -54.4	146.3	27 37.7 -54.7	146.6	26 47.5 -55.0	146.9	25 57.1 -55.2	147.2	25 57.1 -55.2	147.2	25 57.1 -55.2	147.2	25 57.1 -55.2	147.2	25 57.1 -55.2	147.2	13		
14	30 52.7 -53.3	145.6	30 03.1 -53.6	145.9	29 13.4 -54.0	146.2	28 23.4 -54.3	146.5	27 33.3 -54.6	146.8	26 43.0 -54.8	147.1	25 52.5 -55.0	147.4	25 01.9 -55.3	147.6	25 01.9 -55.3	147.6	25 01.9 -55.3	147.6	25 01.9 -55.3	147.6	25 01.9 -55.3	147.6	14		
15	29 59.4 -53.5	146.1	29 09.5 -53.8	146.4	28 19.4 -54.1	146.7	27 29.1 -54.3	147.0	26 38.7 -54.6	147.3	25 48.2 -54.9	147.6	24 57.5 -55.2	147.8	24 06.6 -55.3	148.1	24 06.6 -55.3	148.1	24 06.6 -55.3	148.1	24 06.6 -55.3	148.1	24 06.6 -55.3	148.1	15		
16	29 05.9 -53.6	146.6	28 15.7 -53.8	146.9	27 25.3 -54.2	147.2	26 34.8 -54.5	147.5	25 44.1 -54.7	147.8	24 53.3 -54.9	148.0	24 02.3 -55.1	148.2	23 11.3 -55.5	148.5	23 11.3 -55.5	148.5	23 11.3 -55.5	148.5	23 11.3 -55.5	148.5	23 11.3 -55.5	148.5	16		
17	28 12.3 -53.8	147.1	27 21.8 -54.0	147.4	26 31.1 -54.2	147.7	25 40.3 -54.5	148.0	24 49.4 -54.8	148.2	23 58.4 -55.1	148.4	23 07.2 -55.3	148.7	22 15.8 -55.4	148.9	22 15.8 -55.4	148.9	22 15.8 -55.4	148.9	22 15.8 -55.4	148.9	22 15.8 -55.4	148.9	17		
18	27 18.5 -53.8	147.6	26 27.8 -54.1	147.9	25 36.9 -54.4	148.2	24 45.8 -54.6	148.4	23 56.4 -54.8	148.7	23 03.3 -55.1	148.9	22 11.9 -55.3	149.1	21 20.4 -55.6	149.3	21 20.4 -55.6	149.3	21 20.4 -55.6	149.3	21 20.4 -55.6	149.3	21 20.4 -55.6	149.3	18		
19	26 24.7 -53.9	148.1	25 33.7 -54.2	148.4	24 42.5 -54.4	148.6	23 51.2 -54.7	148.9	22 59.8 -55.0	149.1	22 08.2 -55.1	149.3	21 26.6 -55.4	149.5	20 42.8 -55.6	150.0	20 42.8 -55.6	150.0	20 42.8 -55.6	150.0	20 42.8 -55.6	150.0	20 42.8 -55.6	150.0	19		
20	25 30.8 -54.1	148.6	24 39.5 -54.3	148.9	23 48.1 -54.6	149.1	22 56.5 -54.8	149.3	22 04.8 -55.0	149.5	21 13.1 -55.2	149.7	20 21.2 -55.4	149.9	19 29.2 -55.6	150.1	19 29.2 -55.6	150.1	19 29.2 -55.6	150.1	19 29.2 -55.6	150.1	19 29.2 -55.6	150.1	20		
21	24 36.7 -54.1	149.1	23 45.2 -54.4	149.3	22 53.5 -54.6	149.6	21 01.7 -54.8	149.8	21 09.8 -55.0	150.0	20 17.9 -55.3	150.2	19 25.8 -55.5	150.3	18 33.6 -55.7	150.5	18 33.6 -55.7	150.5	18 33.6 -55.7	150.5	18 33.6 -55.7	150.5	18 33.6 -55.7	150.5	21		
22	23 42.6 -54.2	149.6	22 50.8 -54.4	149.8	21 58.9 -54.7	150.0	21 06.9 -54.9	150.2	20 14.8 -55.1	150.4	19 22.6 -55.4	150.6	18 30.3 -55.6	150.7	17 37.9 -55.7	150.9	17 37.9 -55.7	150.9	17 37.9 -55.7	150.9	17 37.9 -55.7	150.9	17 37.9 -55.7	150.9	22		
23	22 48.4 -54.3	150.0	21 56.4 -54.5	150.3	21 04.2 -54.7	150.4	20 12.0 -55.0	150.6	19 19.7 -55.2	150.8	18 27.2 -55.3	151.0	17 34.7 -55.6	151.1	16 42.2 -55.8	151.3	16 42.2 -55.8	151.3	16 42.2 -55.8	151.3	16 42.2 -55.8	151.3	16 42.2 -55.8	151.3	23		
24	21 51.4 -54.3	150.5	20 19.1 -54.5	150.7	19 05.9 -54.7	150.9	18 17.8 -54.9	151.1	17 25.4 -55.2	151.3	16 33.1 -55.4	151.5	15 40.9 -55.6	151.7	14 47.8 -55.9	151.9	14 47.8 -55.9	151.9	14 47.8 -55.9	151.9	14 47.8 -55.9	151.9	14 47.8 -55.9	151.9	24		
25	20 59.8 -54.4	151.0	20 07.3 -54.7	151.1	19 14.7 -54.9	151.3	18 22.0 -55.1	151.5	17 29.2 -55.2	151.6	16 36.4 -55.5	151.8	15 43.5 -55.7	152.0	14 50.5 -55.8	152.2	14 50.5 -55.8	152.2	14 50.5 -55.8	152.2	14 50.5 -55.8	152.2	14 50.5 -55.8	152.2	25		
26	19 05.4 -55.0	151.5	19 08.6 -55.4	151.8	18 19.8 -55.6	152.0	17 26.9 -55.8	152.1	16 34.0 -55.5	152.2	15 40.9 -55.5	152.4	14 47.8 -55.7	152.6	13 54.7 -55.9	152.8	13 54.7 -55.9	152.8	13 54.7 -55.9	152.8	13 54.7 -55.9	152.8	13 54.7 -55.9	152.8	26		
27	18 10.9 -55.4	151.9	18 38.6 -55.8	152.1	17 31.2 -55.3	152.2	16 37.7 -55.5	152.3	15 31.8 -55.6	152.4	14 23.4 -55.8	152.5	13 24.9 -55.9	152.6	12 24.2 -56.0	152.7	12 24.2 -56.0	152.7	12 24.2 -56.0	152.7	12 24.2 -56.0	152.7					

31°, 329° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	38°			39°			40°			41°			42°			43°			44°			45°			Dec.				
Dec.	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.				
0	42	29.4	+49.9	135.7	41	46.2	+50.5	136.3	41	02.6	+51.0	136.9	40	18.6	+51.5	137.5	39	34.1	+52.0	138.1	38	49.3	+52.4	138.6	38	04.1	+52.8	139.1	0
1	43	19.3	+49.7	134.9	42	36.7	+50.2	135.6	41	53.6	+50.7	136.2	41	10.1	+51.2	136.8	40	26.1	+51.7	137.4	39	41.7	+52.2	138.0	38	56.9	+52.7	138.5	1
2	44	09.0	+49.3	134.2	43	26.9	+49.9	134.8	42	44.3	+50.5	135.5	42	01.3	+51.0	136.1	41	17.8	+51.5	136.8	40	33.9	+52.0	137.3	39	49.6	+52.4	137.9	2
3	44	58.3	+48.3	133.4	44	16.8	+49.6	134.1	43	34.8	+50.2	134.8	42	52.3	+50.7	135.4	42	09.3	+51.3	136.1	41	25.9	+51.8	136.7	40	42.0	+52.3	137.3	3
4	45	47.2	+48.7	132.5	45	06.4	+49.2	133.3	44	25.0	+49.8	134.0	43	43.0	+50.5	134.7	43	00.6	+51.0	135.4	42	17.7	+51.5	136.0	41	34.3	+52.0	136.6	4
5	46	35.9	+48.2	131.7	45	55.6	+48.9	132.5	45	14.8	+49.6	133.2	44	33.5	+50.1	133.9	43	51.6	+50.7	134.6	43	09.2	+51.2	135.3	42	26.3	+51.7	136.0	5
6	47	24.1	+47.8	130.8	46	44.5	+48.5	131.6	46	04.4	+49.1	132.4	45	23.6	+49.8	133.2	44	42.3	+50.4	133.9	44	00.4	+51.0	134.6	43	18.0	+51.6	135.3	6
7	48	11.9	+47.4	129.9	47	33.0	+48.1	130.8	46	53.5	+48.8	131.6	46	13.4	+49.5	132.4	45	32.7	+50.1	133.1	44	51.4	+50.7	133.9	43	27.2	+51.8	135.2	7
8	48	59.3	+46.9	129.0	48	21.1	+47.7	129.9	47	42.3	+48.4	130.7	47	02.9	+49.1	131.5	46	22.8	+49.7	132.3	45	42.1	+50.3	133.1	44	19.0	+51.5	134.5	8
9	49	46.2	+46.4	128.0	49	08.8	+47.2	129.0	48	30.7	+48.0	129.8	47	52.0	+48.7	130.7	47	12.5	+49.4	131.5	46	32.4	+50.4	132.3	45	51.8	+50.6	133.1	9
10	50	32.6	+45.9	127.0	49	56.0	+46.8	128.0	49	18.7	+47.6	128.9	48	40.7	+48.3	129.8	48	01.9	+49.0	130.7	47	22.5	+49.7	131.5	46	42.4	+50.3	132.3	10
11	51	18.5	+45.4	126.0	50	42.8	+46.2	127.0	50	06.3	+47.0	128.0	49	29.0	+47.8	128.9	48	50.9	+48.6	129.8	48	12.2	+49.3	130.7	47	32.7	+50.0	131.5	11
12	52	03.9	+44.7	125.0	51	29.0	+45.7	126.0	50	53.3	+46.6	127.0	50	16.8	+47.4	128.0	49	39.5	+48.2	128.9	49	01.5	+48.9	129.8	47	43.3	+50.2	131.5	12
13	52	48.6	+44.2	123.9	52	14.7	+45.1	125.0	51	39.9	+46.0	126.0	51	04.2	+46.9	127.0	50	27.7	+47.7	128.0	49	50.4	+48.5	128.9	48	33.5	+50.0	130.7	13
14	53	32.8	+43.4	122.7	52	59.8	+44.5	123.9	52	25.9	+45.5	125.0	51	51.1	+46.3	126.0	51	15.4	+47.2	127.0	50	38.9	+48.0	128.0	50	01.5	+48.3	129.8	14
15	54	16.2	+42.8	121.6	53	44.3	+43.9	122.7	53	11.4	+44.8	123.9	52	37.4	+45.8	125.0	52	02.6	+46.7	126.0	51	26.9	+47.6	127.0	50	50.3	+48.4	128.0	15
16	54	59.0	+42.1	120.4	54	28.2	+43.1	121.6	53	56.2	+44.2	122.8	53	23.2	+45.2	123.9	52	49.3	+46.2	125.0	52	14.5	+47.0	126.0	51	38.7	+47.9	127.1	16
17	55	41.1	+41.2	119.1	55	11.3	+42.4	120.4	54	40.4	+43.5	121.6	54	08.4	+44.6	122.8	53	35.5	+45.5	123.9	53	01.5	+46.5	125.0	52	26.6	+47.4	126.1	17
18	56	22.3	+40.4	117.8	55	53.7	+41.6	119.1	55	23.9	+42.8	120.4	54	21.0	+44.9	122.8	53	48.0	+45.8	124.0	53	14.0	+46.8	125.1	52	39.0	+47.8	126.2	18
19	57	02.7	+39.5	116.5	56	35.3	+40.8	117.8	56	06.7	+42.0	119.1	55	36.9	+43.1	120.4	55	05.9	+44.3	121.7	54	33.9	+45.2	122.9	54	00.8	+46.3	124.0	19
20	57	42.2	+38.5	115.1	57	16.1	+39.9	116.5	56	48.7	+41.2	117.9	56	20.0	+42.4	119.2	55	50.2	+43.5	120.5	55	19.2	+44.6	121.7	54	47.1	+45.7	122.9	20
21	58	20.7	+37.5	113.6	57	56.0	+38.9	115.1	57	29.9	+40.2	116.5	57	02.4	+41.6	117.9	56	33.7	+42.8	119.2	56	03.8	+44.0	120.5	55	00.6	+46.1	123.0	21
22	58	58.2	+36.5	112.1	58	34.9	+37.9	113.6	58	10.1	+39.4	115.1	57	44.0	+40.7	116.6	57	16.5	+42.0	118.0	56	47.8	+43.1	119.3	56	17.8	+44.3	120.6	22
23	59	34.7	+35.3	110.6	59	12.8	+36.9	112.1	58	49.5	+38.3	113.7	58	24.7	+39.7	115.2	57	58.5	+41.0	116.6	57	30.9	+42.4	118.0	57	02.1	+43.6	119.4	23
24	60	10.0	+34.1	109.0	59	49.7	+35.7	110.6	59	27.8	+37.3	112.2	59	04.4	+38.7	113.7	58	39.5	+40.2	115.2	58	13.3	+41.5	116.7	57	45.7	+42.7	118.1	24
25	60	44.1	+32.7	107.3	60	25.4	+34.5	109.0	60	05.1	+36.1	110.6	59	43.1	+37.7	112.2	59	19.7	+39.2	113.8	58	54.8	+40.5	115.3	58	28.4	+41.9	116.8	25
26	61	16.8	+31.5	105.6	60	59.9	+33.2	107.3	60	41.2	+34.9	109.0	60	20.8	+36.6	110.7	59	58.9	+38.1	112.3	59	35.3	+39.6	113.9	59	10.3	+41.0	115.4	26
27	61	48.3	+30.0	103.8	61	33.1	+31.8	105.6	61	16.1	+33.6	107.3	60	57.4	+35.3	109.0	60	37.0	+36.9	110.7	60	14.9	+38.5	112.4	59	51.3	+40.0	114.0	27
28	62	18.3	+28.4	101.9	62	04.9	+30.4	103.8	61	49.7	+32.3	105.6	61	32.7	+34.0	107.4	61	13.9	+35.8	109.1	60	53.4	+37.4	110.8	60	31.3	+39.0	112.5	28
29	62	46.7	+26.3	100.0	62	35.3	+28.9	101.9	62	22.0	+30.8	103.8	62	06.7	+32.7	105.6	61	49.7	+34.4	107.4	61	30.8	+36.2	109.2	61	10.3	+37.8	110.9	29
30	63	13.6	+25.2	98.0	63	04.2	+27.2	100.0	62	52.8	+29.3	101.9	62	39.4	+31.2	103.8	62	24.1	+33.1	105.7	62	07.0	+34.9	107.5	61	48.1	+36.6	109.3	30
31	63	38.8	+23.4	96.0	63	31.4	+25.6	98.0	63	22.1	+27.6	100.0	63	10.6	+29.7	101.9	62	57.2	+31.7	103.9	62	41.9	+33.6	105.7	61	24.7	+35.4	107.6	31
32	64	0.2	+21.5	93.9	63	57.0	+23.8	96.0	63	49.7	+26.0	98.0	63	40.3	+28.1	100.0	63	28.9	+30.1	102.0	63	15.5	+32.0	103.9	63	00.1	+33.9	105.8	32
33	64	44.4	+17.6	89.6	64	42.7	+11.4	82.5	65	56.8	+14.0	84.7	66	01.2	+16.4	87.0	66	17.6	+14.2	84.6	66	27.5	+20.6	88.9	66	46.0	+30.9	101.2	33
34	65	50.2	+6.6*	77.9	66	01.6	+20.1	91.7	66	72.2	+2.7	93.8	67	07.4	-0.3	95.9	67	27.3	+2.7	91.8	67	44.9	+4.9*	74.1	68	00.1	+7.6	76.5	45
35	65	0.0	+15.6*	87.3	65	27.7	+17.9*	89.5	65	02.1	+20.3*	91.6	65	59.3	+22.6	93.8	64	54.2	+25.0	95.9	64	47.0	+27.1	98.0	64	37.5	+29.3	100.1	35
36	65	16.6	+13.4*	85.0	65	20.6	+15.9*	87.2	65	22.4	+18.3*	89.4	65	21.9	+20.7*	91.6	65	19.2	+23.0*	93.7	65	14.1	+25.3	95.9	65	6.8	+27.6	98.0	36
37	65	30.0	+11.2*	82.7																									

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 31° , 329°

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.	
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		
0	42 29.4 -50.3	135.7	41 46.2 -50.8	136.3	41 02.6 -51.3	136.9	40 18.6 -51.8	137.5	39 34.1 -52.2	138.1	38 49.3 -52.6	138.6	38 04.1 -53.1	139.1	37 18.5 -53.4	139.6	37 00.0 -53.7	140.0	36 25.1 -53.6	140.2	36 00.0 -53.7	140.2	35 21.1 -53.7	140.8	0	
1	41 39.1 -50.5	136.4	40 55.4 -51.0	137.0	40 11.3 -51.5	137.6	39 26.8 -51.9	138.2	38 41.9 -52.4	138.7	37 56.7 -52.8	139.2	37 11.0 -53.2	139.7	36 25.1 -53.6	140.2	36 00.0 -53.7	140.2	35 21.1 -53.7	140.8	35 00.0 -53.7	140.8	34 24.6 -53.7	141.4	1	
2	40 48.6 -50.7	137.2	40 04.4 -51.2	137.7	39 19.8 -51.7	138.3	38 34.9 -52.2	138.8	37 49.5 -52.5	139.3	37 03.9 -53.0	139.8	36 17.8 -53.3	140.3	35 31.5 -53.7	140.8	35 00.0 -53.7	140.8	34 24.6 -53.7	141.4	34 08.4 -53.9	141.3	33 43.9 -54.0	141.8	2	
3	39 57.9 -51.1	137.9	39 13.2 -51.5	138.4	38 28.1 -51.9	138.9	37 42.7 -52.3	139.4	36 57.0 -52.8	139.9	36 10.9 -53.2	140.4	35 24.5 -53.5	140.9	34 37.8 -53.9	141.3	34 00.0 -53.7	141.4	33 43.9 -54.0	141.8	32 49.9 -54.1	142.4	32 49.9 -54.1	142.4	31 55.8 -54.3	142.9
4	39 06.8 -51.2	138.5	38 21.7 -51.7	139.1	37 36.2 -52.1	139.6	36 50.4 -52.6	140.1	36 04.2 -52.9	140.5	35 17.7 -53.3	141.0	34 31.0 -53.7	141.4	33 43.9 -54.0	141.8	33 00.0 -51.3	141.3	32 49.9 -54.1	142.4	32 49.9 -54.1	142.4	31 55.8 -54.3	142.9		
5	38 15.6 -51.5	139.2	37 30.0 -51.8	139.7	36 44.1 -52.4	140.2	35 57.8 -52.7	140.7	35 11.3 -53.1	141.1	34 24.4 -53.4	141.5	33 37.3 -53.6	142.0	32 49.9 -54.1	142.4	32 00.0 -51.3	142.3	31 49.6 -54.1	142.8	31 01.5 -54.4	143.4	30 07.1 -54.4	143.9	5	
6	37 24.1 -51.7	139.9	36 38.1 -52.1	140.3	35 51.7 -52.4	140.8	35 05.1 -52.9	141.2	34 18.2 -53.3	141.7	33 31.0 -53.6	142.1	32 43.5 -53.9	142.5	31 55.8 -54.3	142.9	31 00.0 -51.3	142.3	30 49.6 -54.1	143.0	30 07.1 -54.4	143.4	29 12.7 -54.6	144.4	6	
7	36 32.4 -51.8	140.5	35 46.0 -52.3	140.9	34 59.3 -52.7	141.4	34 12.2 -53.0	141.8	33 24.9 -53.4	142.2	32 37.4 -53.8	142.6	31 49.6 -54.1	143.0	30 55.5 -54.2	143.5	30 07.1 -54.4	143.9	29 12.7 -54.6	144.4	28 48.8 -55.2	147.5	28 48.8 -55.2	147.5	27 23.4 -54.7	145.3
8	35 40.6 -52.1	141.1	34 53.7 -52.4	141.6	34 06.6 -52.8	142.0	33 19.2 -53.2	142.4	32 31.5 -53.5	142.8	31 43.6 -53.8	143.2	30 55.5 -54.2	143.5	30 07.1 -54.4	143.9	29 12.7 -54.6	144.4	28 38.9 -55.0	146.6	28 38.9 -55.0	146.6	27 28.7 -54.9	145.7		
9	34 48.5 -52.3	141.7	34 01.3 -52.7	142.1	33 13.8 -53.0	142.5	32 26.0 -53.3	142.9	31 38.0 -53.7	143.3	30 49.8 -54.0	143.7	30 01.3 -54.3	144.0	29 12.7 -54.6	144.4	28 07.0 -54.3	144.5	28 18.1 -54.7	144.8	28 18.1 -54.7	144.8	27 23.4 -54.7	145.3		
10	33 56.2 -52.4	142.3	33 08.6 -52.7	142.7	32 20.8 -53.2	143.1	31 32.7 -53.5	143.5	30 44.3 -53.7	143.8	29 55.8 -54.1	144.2	29 07.0 -54.3	144.5	28 00.0 -51.3	144.2	27 44.4 -54.7	144.8	27 44.4 -54.7	144.8	26 28.7 -54.9	145.5	26 28.7 -54.9	145.5		
11	33 03.8 -52.5	142.9	32 15.9 -53.0	143.3	31 27.6 -53.2	143.7	30 39.2 -53.6	144.0	29 50.6 -53.9	144.3	29 01.7 -54.2	144.7	28 12.7 -54.5	145.0	27 23.4 -54.7	145.3	27 23.4 -54.7	145.3	26 28.7 -54.9	145.7	26 28.7 -54.9	145.7	25 33.8 -54.9	146.2		
12	32 11.3 -52.8	143.5	31 22.9 -53.0	143.8	30 34.4 -53.4	144.2	29 45.6 -53.7	144.5	28 56.7 -54.1	144.9	28 07.5 -54.3	145.2	27 18.2 -54.6	145.5	26 28.7 -54.9	145.7	26 28.7 -54.9	145.7	25 33.8 -54.9	146.2	25 33.8 -54.9	146.2	24 38.9 -55.0	146.6		
13	31 18.5 -52.8	144.0	30 29.9 -53.2	144.4	29 41.0 -53.5	144.7	28 51.9 -53.8	145.0	28 02.6 -54.1	145.3	27 13.2 -54.4	145.6	26 23.6 -54.7	145.9	25 33.8 -54.9	146.2	25 33.8 -54.9	146.2	24 38.9 -55.0	146.6	24 38.9 -55.0	146.6	23 43.9 -55.3	147.1		
14	30 25.7 -53.0	144.6	29 36.7 -53.4	144.9	28 47.5 -53.7	145.2	27 58.1 -53.9	145.5	27 08.5 -54.2	145.8	26 18.8 -54.5	146.1	25 28.9 -54.7	146.4	24 38.9 -55.0	146.6	24 38.9 -55.0	146.6	23 43.9 -55.3	147.1	23 43.9 -55.3	147.1	22 48.8 -55.2	147.5		
15	29 32.7 -53.2	145.1	28 43.3 -53.4	145.4	27 53.8 -53.7	145.7	27 04.2 -54.1	146.0	26 14.3 -54.3	146.3	25 24.3 -54.6	146.6	24 34.2 -54.9	146.8	23 43.9 -55.1	147.1	23 43.9 -55.1	147.1	22 44.4 -55.0	147.7	22 44.4 -55.0	147.7	21 53.6 -55.2	147.9		
16	28 39.5 -53.2	145.7	27 49.9 -53.6	146.0	27 00.1 -53.9	146.2	26 10.1 -54.1	146.5	25 20.0 -54.4	146.8	24 29.7 -54.6	147.0	23 39.3 -54.9	147.3	22 48.8 -55.2	147.5	22 48.8 -55.2	147.5	21 53.6 -55.2	147.9	21 53.6 -55.2	147.9	20 58.4 -55.3	148.4		
17	27 46.3 -53.4	146.2	26 56.3 -53.6	146.5	26 06.2 -53.9	146.7	25 16.0 -54.2	147.0	24 25.6 -54.5	147.3	23 35.1 -54.8	147.5	22 44.4 -55.0	147.7	21 53.6 -55.2	147.9	21 53.6 -55.2	147.9	20 58.4 -55.3	148.4	20 58.4 -55.3	148.4	19 49.4 -55.1	149.4		
18	26 52.9 -53.5	146.7	26 02.7 -53.8	147.0	25 12.3 -54.0	147.2	24 21.8 -54.3	147.5	23 31.1 -54.5	147.7	22 40.3 -54.8	147.9	21 49.4 -55.0	148.2	20 58.4 -55.3	148.4	20 58.4 -55.3	148.4	19 49.4 -55.1	149.4	19 49.4 -55.1	149.4	18 12.4 -55.4	149.6		
19	25 59.4 -53.6	147.2	25 08.9 -53.9	147.5	24 18.3 -54.2	147.7	23 27.5 -54.4	147.9	22 36.6 -54.7	148.2	21 45.5 -54.8	148.4	20 54.4 -55.1	148.6	19 03.1 -53.3	148.8	19 03.1 -53.3	148.8	18 08.9 -55.3	149.8	18 08.9 -55.3	149.8	17 17.0 -55.5	150.0		
20	25 05.8 -53.7	147.7	24 15.0 -53.9	147.9	23 24.1 -54.2	148.2	22 33.1 -54.5	148.4	21 41.9 -54.7	148.6	20 50.7 -55.0	148.8	19 59.3 -55.2	149.0	19 07.8 -55.4	149.2	19 07.8 -55.4	149.2	18 12.4 -55.4	149.6	18 12.4 -55.4	149.6	17 23.4 -54.7	150.2		
21	24 12.1 -53.7	148.2	23 21.1 -54.0	148.4	22 29.9 -54.3	148.6	21 38.6 -54.5	148.8	20 47.2 -54.8	149.0	19 55.7 -55.0	149.2	19 04.1 -55.2	149.4	18 12.4 -55.4	149.6	18 12.4 -55.4	149.6	17 23.4 -54.7	150.2	17 23.4 -54.7	150.2	16 28.7 -54.9	150.7		
22	23 18.4 -53.9	148.7	22 27.1 -54.2	148.9	21 35.6 -54.3	149.1	20 44.1 -54.6	149.3	19 52.4 -54.8	149.5	19 00.7 -55.1	149.7	18 08.9 -55.3	149.8	17 17.0 -55.5	150.0	17 17.0 -55.5	150.0	16 25.7 -55.6	150.4	16 25.7 -55.6	150.4	15 29.5 -55.5	150.8		
23	22 24.5 -54.0	149.1	21 32.9 -54.2	149.4	20 41.3 -54.5	149.6	19 49.5 -54.7	149.7	18 57.6 -54.9	149.9	18 05.6 -55.1	150.1	17 13.6 -55.3	150.2	16 21.5 -55.6	150.4	16 21.5 -55.6	150.4	15 25.9 -55.5	150.8	15 25.9 -55.5	150.8	14 34.3 -55.7	152.3		
24	21 30.5 -54.0	149.6	20 38.7 -54.2	149.8	19 46.8 -54.5	150.0	18 00.1 -54.8	150.6	17 07.8 -55.0	150.8	16 15.4 -55.2	150.9	15 22.9 -55.4	151.0	14 30.4 -55.6	151.2	14 30.4 -55.6	151.2	13 39.1 -55.4	151.4	13 39.1 -55.4	151.4	12 43.4 -55.7	152.3		
25	20 36.5 -54.1	150.1	19 44.5 -54.4	150.3	18 52.3 -54.6	150.4	17 05.3 -54.8	150.9	16 12.8 -55.1	151.2	15 20.2 -55.3	151.3	14 27.5 -55.5	151.4	13 34.8 -55.7	151.6	13 34.8 -55.7	151.6	12 36.5 -55.5	152.0	12 36.5 -55.5	152.0	11 43.4 -55.7	152.3		
26	19 42.4 -54.2	150.5	18 50.1 -54.5	150.7	17 57.7 -54.6	150.9	16 07.3 -54.8	151.0	15 10.3 -55.1	151.2	14 20.2 -55.3	151.3	13 27.5 -55.5	151.4	12 36.5 -55.7	151.6	12 36.5 -55.7	151.6	11 43.4 -55.7	152.3	11 43.4 -55.7	152.3	10 49.4 -55.9	153.1		
27	18 48.2 -54.2	151.0	17 55.7 -54.4	151.2	17 03.1 -54.7	151.3	16 10.5 -54.9	151.5	15 17.7 -55.1	151.6	14 24.9 -55.3	151.7	13 32.0 -55.5	151.8	12 39.1 -55.7	151.9	12 39.1 -55.7	151.9	11 43.4 -55.7	152.3	11 43.4 -55.7	152.3	10 49.4 -55.9	153.1		
28	17 54.0 -54.3	151.5	17 01.3 -54.6	151.6	16 08.4 -54.7	151.7	15 15.6 -55.0	151.9	14 22.6 -55.3	152.0	13 29.6 -55.5	152.1	12 36.5 -55.7	152.2	11 43.4 -55.7	152.5	11 43.4 -55.7	152.5	10 49.4 -55.9	1						

32°, 328° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	38°			39°			40°			41°			42°			43°			44°			45°			Dec.								
Dec.	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.								
0	41	56.0	+49.5	134.6	41	13.7	+50.0	135.2	40	30.9	+50.6	135.8	39	47.6	+51.2	136.4	39	04.0	+51.6	137.0	38	19.9	+52.1	137.5	37	35.5	+52.5	138.0	36	50.7	+53.0	138.5	0
1	42	45.5	+49.2	133.8	42	03.7	+49.8	134.5	41	21.5	+50.3	135.1	40	38.8	+50.8	135.7	39	55.6	+51.4	136.3	39	12.0	+51.9	136.9	38	28.0	+52.3	137.4	37	43.7	+52.7	137.9	1
2	43	34.7	+48.9	133.0	42	53.5	+49.5	133.7	42	11.8	+50.1	134.4	41	29.6	+50.6	135.0	40	47.0	+51.1	135.6	40	03.9	+51.6	136.2	39	20.3	+52.1	136.8	38	36.4	+52.6	137.3	2
3	44	23.6	+48.5	132.2	43	43.0	+49.1	132.9	43	01.9	+49.7	133.6	42	20.2	+50.3	134.3	41	38.1	+50.8	134.9	40	55.5	+51.4	135.5	40	12.4	+51.9	136.1	39	29.0	+52.3	136.7	3
4	45	12.1	+48.1	131.4	44	32.1	+48.8	132.1	43	51.6	+49.4	132.8	43	10.5	+50.1	133.5	42	28.9	+50.6	134.2	41	46.9	+51.1	134.9	41	04.3	+51.7	135.5	40	21.3	+52.2	136.1	4
5	46	00.2	+47.8	130.5	45	20.9	+48.5	131.3	44	41.0	+49.1	132.1	44	00.6	+49.7	132.8	43	19.5	+50.3	133.5	42	38.0	+50.8	134.1	41	56.0	+51.4	134.8	41	13.5	+51.9	135.4	5
6	46	48.0	+47.3	129.7	46	09.4	+48.0	130.5	45	30.1	+48.7	131.2	44	50.3	+49.3	132.0	44	09.8	+50.0	132.7	43	28.9	+50.5	133.4	42	47.4	+51.1	134.1	42	05.4	+51.6	134.8	6
7	47	35.3	+46.9	128.8	46	57.4	+47.6	129.6	46	18.8	+48.4	130.4	45	39.6	+49.1	131.2	44	59.8	+49.7	131.9	44	19.4	+50.3	132.7	43	38.5	+50.9	133.4	42	57.0	+51.4	134.1	7
8	48	22.2	+46.4	127.8	47	45.0	+47.3	128.7	47	07.2	+47.9	129.5	46	28.7	+48.6	130.4	45	49.5	+49.3	131.1	45	09.7	+50.0	131.9	44	29.4	+50.5	132.6	43	48.4	+51.2	133.4	8
9	49	08.6	+46.0	126.9	48	32.3	+46.7	127.8	47	55.1	+47.6	128.6	47	17.3	+48.3	129.5	46	38.8	+49.0	130.3	45	59.7	+49.6	131.1	45	19.9	+50.3	131.9	44	39.6	+50.8	132.6	9
10	49	54.6	+45.4	125.9	49	19.0	+46.3	126.8	48	42.7	+47.0	127.7	48	05.6	+47.8	128.6	47	27.8	+48.6	129.5	46	49.3	+49.3	130.3	46	10.2	+49.9	131.1	45	30.4	+50.6	131.9	10
11	50	40.0	+44.8	124.8	50	05.3	+45.7	125.8	49	29.7	+46.6	126.8	48	53.4	+47.4	127.7	48	16.4	+48.1	128.6	47	00.1	+49.6	130.3	46	21.0	+50.2	131.1	11				
12	51	24.8	+44.3	123.8	50	51.0	+45.2	124.8	50	16.3	+46.1	125.8	49	40.8	+46.9	126.8	49	04.5	+47.7	127.7	48	27.5	+48.4	128.6	47	11.2	+49.9	130.3	12				
13	52	09.1	+43.6	122.7	51	36.2	+44.6	123.8	51	02.4	+45.6	124.8	50	27.7	+46.5	125.8	49	52.2	+47.3	126.8	49	15.9	+48.1	127.7	48	38.9	+48.8	128.6	48	01.1	+49.5	129.5	13
14	52	52.7	+43.0	121.6	52	20.8	+44.0	122.7	51	48.0	+44.9	123.8	51	14.2	+45.9	124.8	50	39.5	+46.8	125.8	50	04.0	+47.6	126.8	49	27.7	+48.4	127.7	48	50.6	+49.1	128.6	14
15	53	35.7	+42.3	120.4	53	04.8	+43.4	121.6	52	32.9	+44.7	122.7	52	00.1	+45.3	123.8	51	26.3	+46.2	124.8	50	51.6	+47.1	125.8	50	16.1	+47.9	126.8	49	39.7	+48.7	127.7	15
16	54	18.0	+41.5	119.2	53	48.2	+42.6	120.4	53	17.3	+43.7	121.6	52	45.4	+44.7	122.7	52	12.5	+45.7	123.8	51	38.7	+46.4	124.8	51	04.0	+47.5	125.8	50	28.4	+48.3	126.8	16
17	54	59.5	+40.8	118.0	54	30.8	+41.9	119.2	54	01.0	+43.0	120.4	53	30.1	+44.1	121.6	52	58.2	+45.1	122.7	52	25.3	+46.0	123.8	51	51.5	+46.9	124.9	51	16.7	+47.8	125.9	17
18	55	40.3	+39.9	116.7	55	12.7	+41.2	118.0	54	44.0	+42.3	119.2	54	14.2	+43.4	120.4	53	43.3	+44.4	121.6	53	38.4	+46.4	123.8	52	04.5	+47.3	124.9	18				
19	56	20.2	+39.0	115.3	55	53.9	+40.2	116.7	55	26.3	+41.5	118.0	54	57.6	+42.7	119.2	54	27.7	+43.8	120.5	53	56.8	+44.2	121.6	53	24.8	+45.8	122.8	52	51.8	+46.8	123.9	19
20	56	59.2	+38.0	113.9	56	34.1	+39.5	115.3	56	07.8	+40.7	116.7	55	40.3	+41.9	118.0	55	11.5	+43.1	119.3	54	41.6	+44.2	120.5	54	10.6	+45.3	121.7	53	38.6	+46.2	122.9	20
21	57	37.2	+37.1	112.5	57	13.6	+38.4	113.9	56	48.5	+39.8	115.4	56	22.2	+41.1	116.7	55	54.6	+42.3	118.0	55	25.8	+43.5	119.3	54	55.9	+44.5	120.6	54	24.8	+45.6	121.8	21
22	58	14.3	+36.0	111.0	57	52.0	+37.5	112.5	57	28.3	+38.9	114.0	57	03.3	+40.2	115.4	56	36.9	+41.5	116.8	56	09.3	+42.7	118.1	55	40.4	+43.9	119.4	55	10.4	+44.9	120.6	22
23	58	50.3	+34.8	109.5	58	29.5	+36.4	111.0	58	07.2	+37.9	112.5	57	43.5	+39.3	114.0	57	18.4	+40.6	115.4	56	52.0	+41.9	116.8	56	24.3	+43.1	119.5	55	55.3	+44.3	119.5	23
24	59	25.1	+33.7	107.9	59	05.9	+35.3	109.5	58	45.1	+36.8	111.1	58	22.8	+38.3	112.6	57	59.0	+39.7	114.1	57	33.9	+41.0	115.5	57	07.4	+42.3	116.9	56	39.6	+43.5	118.3	24
25	59	58.8	+32.4	106.3	59	41.2	+34.0	107.9	59	21.9	+35.7	109.5	59	01.1	+37.2	111.1	58	38.7	+38.7	112.6	58	14.9	+40.1	114.1	57	49.7	+41.4	115.6	57	23.1	+42.7	117.0	25
26	60	31.2	+31.1	104.6	60	15.2	+32.9	106.3	59	57.6	+34.5	107.9	59	38.3	+36.1	109.6	59	17.4	+37.7	111.1	58	55.0	+39.2	112.7	58	31.1	+40.6	114.2	58	05.8	+41.9	115.7	26
27	61	0.2	+2.9	102.8	60	48.1	+31.4	104.6	60	32.1	+33.2	106.3	60	14.4	+34.5	108.0	59	55.1	+36.5	109.6	59	34.2	+38.1	111.2	59	11.7	+39.6	112.8	58	47.7	+41.0	114.3	27
28	61	31.9	+28.2	101.0	61	19.5	+30.1	102.8	61	05.3	+31.9	104.6	60	49.4	+33.6	106.3	61	31.6	+35.4	108.0	60	12.3	+36.9	109.7	59	51.3	+38.5	111.3	59	28.7	+40.0	112.9	28
29	62	00.1	+26.6	99.1	61	49.6	+28.6	101.0	61	37.2	+30.5	102.8	61	23.0	+32.4	104.6	61	07.0	+34.1	106.4	60	49.3	+35.4	108.1	60	29.8	+37.4	109.8	60	08.7	+39.0	111.4	29
30	62	26.7	+25.0	97.2	62	18.2	+27.0	99.1	62	07.7	+29.0	101.0	61	55.4	+30.9	102.8	61	41.1	+32.8	104.6	61	25.0	+34.6	106.4	61	07.2	+36.3	108.2	60	47.7	+37.8	109.9	30
31	62	51.7	+23.3	95.2	62	45.2	+25.4	97.2	62	36.7	+27.4	99.1	62	26.3	+29.4	101.0	62	13.9	+31.3	102.9	61	59.6	+33.2	104.7	61	43.5	+34.9	106.5	61	25.5	+36.7	108.3	31
32	63	15.0	+21.5	93.2	63	10.6	+23.6	95.2	63	04.1	+25.8	97.1	62	55.7	+27.8	99.1	62	45.2	+29.2	101.0	62	32.8	+31.7	102.9	62	18.4	+33.7	104.8	62	02.2	+35.4	106.6	32
33	63	36																															

LATITUDE CONTRARY NAME TO DECLINATION **L.H.A. 32°, 328°**

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
0	41 56.0 -49.8	134.6	41 13.7 -50.4	135.2	40 30.9 -50.9	135.8	39 47.6 -51.3	136.4	39 04.0 -51.8	137.0	38 19.9 -52.2	137.5	37 35.5 -52.7	138.0	36 50.7 -53.1	138.5	35 57.6 -53.2	139.1	35 57.6 -53.2	139.1	35 57.6 -53.2	139.1	35 57.6 -53.2	139.1	0
1	41 06.2 -50.1	135.3	40 23.3 -50.6	135.9	39 40.0 -51.1	136.5	38 56.3 -51.6	137.1	38 12.2 -52.0	137.6	37 27.7 -52.5	138.1	36 42.8 -52.8	138.6	35 50.0 -53.1	139.2	35 04.4 -53.4	139.7	35 04.4 -53.4	139.7	35 04.4 -53.4	139.7	35 04.4 -53.4	139.7	1
2	40 16.1 -50.3	136.0	39 32.7 -50.8	136.6	38 48.9 -51.3	137.2	38 04.7 -51.8	137.7	37 20.2 -52.3	138.2	36 35.2 -52.6	138.7	35 50.0 -53.1	139.2	35 04.4 -53.4	139.7	35 04.4 -53.4	139.7	35 04.4 -53.4	139.7	35 04.4 -53.4	139.7	2		
3	39 25.8 -50.6	136.8	38 41.9 -51.1	137.3	37 57.6 -51.5	137.8	37 12.9 -51.9	138.4	36 27.9 -52.4	138.9	35 42.6 -52.8	139.3	34 56.9 -53.2	139.8	34 11.0 -53.6	140.2	34 11.0 -53.6	140.2	34 11.0 -53.6	140.2	34 11.0 -53.6	140.2	3		
4	38 35.2 -50.8	137.4	37 50.8 -51.3	138.0	37 06.1 -51.8	138.5	36 21.0 -52.2	139.0	35 35.5 -52.6	139.5	34 49.8 -53.0	139.9	34 03.7 -53.3	140.3	33 17.4 -53.7	140.8	33 17.4 -53.7	140.8	33 17.4 -53.7	140.8	33 17.4 -53.7	140.8	4		
5	37 44.4 -51.1	138.1	36 59.5 -51.5	138.6	36 14.3 -51.9	139.1	35 28.8 -52.4	139.6	34 42.9 -52.7	140.0	33 56.8 -53.1	140.5	33 10.4 -53.6	140.9	32 23.7 -53.8	141.3	32 23.7 -53.8	141.3	32 23.7 -53.8	141.3	32 23.7 -53.8	141.3	5		
6	36 53.3 -51.3	138.8	36 08.0 -51.7	139.3	35 22.4 -52.2	139.7	34 36.4 -52.5	140.2	33 50.2 -52.9	140.6	33 03.7 -53.3	141.0	32 16.9 -53.6	141.4	31 29.9 -54.0	141.8	31 29.9 -54.0	141.8	31 29.9 -54.0	141.8	31 29.9 -54.0	141.8	6		
7	36 02.0 -51.5	139.4	35 16.3 -51.9	139.9	34 30.2 -52.3	140.3	33 43.9 -52.7	140.8	32 57.3 -53.1	141.2	32 10.4 -53.4	141.6	31 23.3 -53.8	142.0	30 35.9 -54.1	142.3	30 35.9 -54.1	142.3	30 35.9 -54.1	142.3	30 35.9 -54.1	142.3	7		
8	35 10.5 -51.6	140.1	34 24.4 -52.1	140.5	33 37.9 -52.4	140.9	32 51.2 -52.8	141.3	32 04.2 -53.2	141.7	31 17.0 -53.5	142.1	30 29.5 -53.8	142.5	29 41.8 -54.2	142.8	29 41.8 -54.2	142.8	29 41.8 -54.2	142.8	29 41.8 -54.2	142.8	8		
9	34 18.9 -51.9	140.7	33 32.3 -52.2	141.1	32 45.5 -52.7	141.5	31 58.4 -53.0	141.9	31 11.0 -53.3	142.3	30 23.5 -53.7	142.6	29 35.7 -54.0	143.0	28 47.6 -54.3	143.3	28 47.6 -54.3	143.3	28 47.6 -54.3	143.3	28 47.6 -54.3	143.3	9		
10	33 27.0 -52.0	141.3	32 40.1 -52.5	141.7	31 52.8 -52.7	142.1	31 05.4 -53.1	142.5	30 17.7 -53.4	142.8	29 29.8 -53.8	143.2	28 41.7 -54.1	143.5	27 53.3 -54.3	143.8	27 53.3 -54.3	143.8	27 53.3 -54.3	143.8	27 53.3 -54.3	143.8	10		
11	32 35.0 -52.2	141.9	31 47.6 -52.5	142.3	31 00.1 -52.9	142.6	30 12.3 -53.3	143.0	29 24.3 -53.6	143.3	28 36.0 -53.9	143.7	27 47.6 -54.2	144.0	26 59.0 -54.5	144.3	26 59.0 -54.5	144.3	26 59.0 -54.5	144.3	26 59.0 -54.5	144.3	11		
12	31 42.8 -52.4	142.5	30 55.1 -52.7	142.8	30 07.2 -53.1	143.2	29 19.0 -53.4	143.5	28 30.7 -53.7	143.9	27 42.1 -54.0	144.2	26 53.4 -54.3	144.5	26 04.5 -54.6	144.8	26 04.5 -54.6	144.8	26 04.5 -54.6	144.8	26 04.5 -54.6	144.8	12		
13	30 50.4 -52.5	143.0	30 02.4 -52.9	143.4	29 14.1 -53.2	143.7	28 25.6 -53.4	144.0	27 37.0 -53.8	144.4	26 48.1 -54.1	144.7	25 59.1 -54.4	144.9	25 09.9 -54.7	145.2	25 09.9 -54.7	145.2	25 09.9 -54.7	145.2	25 09.9 -54.7	145.2	13		
14	29 57.9 -52.6	143.6	29 09.5 -52.9	143.9	28 20.9 -53.3	144.3	27 32.2 -53.7	144.6	26 43.2 -53.9	144.9	25 54.0 -54.2	145.1	25 04.7 -54.5	145.4	24 15.2 -54.7	145.7	24 15.2 -54.7	145.7	24 15.2 -54.7	145.7	24 15.2 -54.7	145.7	14		
15	29 05.3 -52.8	144.1	28 16.6 -53.1	144.5	27 27.6 -53.4	144.8	26 38.5 -53.7	145.1	25 49.3 -54.0	145.3	24 59.8 -54.2	145.6	24 10.2 -54.5	145.9	23 20.5 -54.8	146.1	23 20.5 -54.8	146.1	23 20.5 -54.8	146.1	23 20.5 -54.8	146.1	15		
16	28 12.5 -52.9	144.7	27 23.5 -53.2	145.0	26 34.2 -53.5	145.3	25 44.8 -53.8	145.6	24 55.3 -54.1	145.8	24 05.6 -54.4	146.1	23 15.7 -54.6	146.3	22 25.7 -54.9	146.6	22 25.7 -54.9	146.6	22 25.7 -54.9	146.6	22 25.7 -54.9	146.6	16		
17	27 19.6 -53.0	145.2	26 30.3 -53.4	145.5	25 40.7 -53.6	145.8	24 51.0 -53.9	146.0	23 01.2 -54.2	146.3	22 11.2 -54.5	146.5	22 21.1 -54.7	146.8	21 30.8 -54.9	147.0	21 30.8 -54.9	147.0	21 30.8 -54.9	147.0	21 30.8 -54.9	147.0	17		
18	26 26.6 -53.1	145.7	25 36.9 -53.4	146.0	24 47.1 -53.7	146.3	23 57.1 -54.0	146.5	23 07.0 -54.3	146.8	22 16.7 -54.5	147.0	21 26.4 -54.8	147.2	20 35.9 -55.1	147.4	20 35.9 -55.1	147.4	20 35.9 -55.1	147.4	20 35.9 -55.1	147.4	18		
19	25 33.5 -53.3	146.3	24 43.5 -53.5	146.5	23 53.4 -53.8	146.8	23 03.1 -54.1	147.0	22 12.7 -54.3	147.2	21 22.2 -54.6	147.4	20 31.6 -54.8	147.7	19 40.8 -55.0	147.9	19 40.8 -55.0	147.9	19 40.8 -55.0	147.9	19 40.8 -55.0	147.9	19		
20	24 40.2 -53.3	146.8	23 50.0 -53.6	147.0	22 59.6 -53.9	147.3	22 09.0 -54.1	147.5	21 18.4 -54.4	147.7	20 27.6 -54.6	147.9	19 36.8 -54.9	148.1	18 45.8 -55.2	148.3	18 45.8 -55.2	148.3	18 45.8 -55.2	148.3	18 45.8 -55.2	148.3	20		
21	23 46.9 -53.4	147.3	22 56.4 -53.8	147.5	22 05.7 -54.0	147.7	21 14.9 -54.2	147.9	20 24.0 -54.5	148.1	19 33.0 -54.7	148.3	18 41.9 -55.0	148.5	17 50.6 -55.1	148.7	17 50.6 -55.1	148.7	17 50.6 -55.1	148.7	17 50.6 -55.1	148.7	21		
22	22 53.5 -53.6	147.8	22 02.6 -53.7	148.0	21 11.7 -54.0	148.2	20 20.7 -54.3	148.4	19 29.5 -54.5	148.6	18 38.3 -54.8	148.8	17 46.9 -55.0	148.9	16 55.5 -55.3	149.1	16 55.5 -55.3	149.1	16 55.5 -55.3	149.1	16 55.5 -55.3	149.1	22		
23	21 59.9 -53.6	148.3	21 08.9 -53.9	148.5	20 17.7 -54.2	148.7	19 26.4 -54.4	148.8	18 35.0 -54.6	149.0	17 43.5 -54.9	149.2	16 51.9 -55.1	149.4	16 00.2 -55.2	149.5	16 00.2 -55.2	149.5	16 00.2 -55.2	149.5	16 00.2 -55.2	149.5	23		
24	21 06.3 -53.7	148.7	20 15.0 -54.0	148.9	19 23.5 -54.2	149.1	18 32.0 -54.4	149.3	17 40.4 -54.7	149.5	16 48.6 -55.0	150.2	15 54.8 -55.1	150.4	15 55.8 -55.1	150.4	15 55.8 -55.1	150.4	15 55.8 -55.1	150.4	15 55.8 -55.1	150.4	24		
25	20 12.6 -53.7	149.2	19 21.0 -54.0	149.4	18 29.3 -54.2	149.6	17 37.6 -54.5	149.7	16 45.7 -54.7	149.9	15 53.7 -54.9	150.0	15 01.7 -55.1	150.2	14 09.6 -55.3	150.3	14 09.6 -55.3	150.3	14 09.6 -55.3	150.3	14 09.6 -55.3	150.3	25		
26	19 25.0 -53.8	149.8	18 23.4 -54.1	150.0	17 31.4 -54.3	150.2	16 39.4 -54.6	150.3	15 47.4 -54.8	150.4	14 55.4 -55.0	150.5	14 06.6 -55.2	150.6	13 44.3 -55.4	150.7	13 44.3 -55.4	150.7	13 44.3 -55.4	150.7	13 44.3 -55.4	150.7	26		
27	18 25.0 -53.9	150.2	17 23.4 -54.2	150.4	16 30.9 -54.5	150.5	15 38.4 -54.7	150.6	14 46.4 -55.0	150.7	13 03.8 -55.2	150.8	12 43.9 -55.4	150.9	12 30.7 -55.5	151.0	12 30.7 -55.5	151.0	12 30.7 -55.5	151.0	12 30.7 -55.5	151.0	27		
28	17 29.2 -54.5	150.5	17 34.7 -54.5	151.1	16 40.3 -54.7	151.5	15 45.9 -55.0	151.6	14 52.8 -55.3	151.7	13 30.8 -55.5	151.8	12 46.2 -55.7	151.9	12 16.2 -55.3	151.4	11 23.5 -55.5	151.5	11 23.5 -55.5	151.5	11 23.5 -55.5	151.5	11 23.5 -55.5	151.5	28
29	17 34.7 -54.4	151.5	16 40.2 -54.6	151.8	15 46.7 -54.8	152.0	14 53.5 -55.0	152.1	13 59.5 -55.3	152.2	12 36.7 -55.6	152.3	11 34.9 -55.5	152.4	10 30.4 -55.6	152.5	9 39.1 -55.6	152.6	9 39.1 -55.6	152.6	9 39.1 -55.6	152.6	9 39.1 -55.6	152.6	35
30	16 35.6 -54.5	152.0	15 31.1 -54.7	152.4	14 33.0 -54.9	152.8	13 39.4 -55.1	152.9	12 41.0 -55.3	153.0	11 34.9 -55.5	153.1	10 30.4 -55.6	153.2	9 30.4 -55.6	153.3	8 30.								

33°, 327° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	38°			39°			40°			41°			42°			43°			44°			45°			Dec.								
Dec.	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.								
0	41	22.0	+49.1	133.5	40	40.5	+49.7	134.1	39	58.5	+50.2	134.7	39	16.1	+50.7	135.3	38	33.2	+51.3	135.9	37	50.0	+51.7	136.4	37	06.3	+52.2	136.9	36	22.3	+52.6	137.4	0
1	42	11.1	+48.7	132.7	41	30.2	+49.3	133.4	40	48.7	+49.9	134.0	40	06.8	+50.5	134.6	39	24.5	+51.0	135.2	38	41.7	+51.5	135.8	37	58.5	+52.0	136.3	37	14.9	+52.5	136.8	1
2	42	59.8	+48.5	131.9	42	19.5	+49.0	132.6	41	38.6	+49.7	133.2	40	57.3	+50.2	133.9	40	15.5	+50.7	134.5	39	33.2	+51.2	135.1	38	50.5	+51.7	135.7	38	07.4	+52.2	136.2	2
3	43	48.3	+48.0	131.1	43	08.5	+48.7	131.8	42	28.3	+49.3	132.5	41	47.5	+49.9	133.2	41	06.2	+50.5	133.8	40	24.4	+51.5	134.4	39	42.2	+51.5	135.0	38	59.6	+52.0	135.6	3
4	44	36.3	+47.7	130.3	43	57.2	+48.4	131.0	43	17.6	+49.0	131.7	42	37.4	+49.6	132.4	41	56.7	+50.2	133.1	41	15.5	+50.7	133.7	40	33.7	+51.3	134.3	39	51.6	+51.8	134.9	4
5	45	24.0	+47.3	129.4	44	45.6	+48.0	130.2	44	06.6	+48.6	130.9	43	27.0	+49.3	131.6	42	46.9	+49.9	132.3	42	06.2	+50.5	133.0	41	25.0	+51.1	133.7	40	43.4	+51.5	134.3	5
6	46	11.3	+46.8	128.5	45	33.6	+47.6	129.3	44	55.2	+48.3	130.1	44	16.3	+49.0	130.8	43	36.8	+49.6	131.6	42	56.7	+50.2	132.3	42	16.1	+50.7	132.9	41	34.9	+51.3	133.6	6
7	46	58.1	+46.5	127.6	46	21.2	+47.2	128.4	45	43.5	+48.0	129.3	45	05.3	+48.6	130.0	44	26.4	+49.2	130.8	43	46.9	+49.9	131.5	43	06.8	+50.5	132.2	42	26.2	+51.1	132.9	7
8	47	44.6	+45.8	126.7	47	08.4	+46.7	127.5	46	31.5	+47.5	128.4	45	53.9	+48.2	129.2	45	15.6	+48.9	130.0	44	36.8	+49.5	130.7	43	57.3	+50.2	131.5	43	17.3	+50.8	132.2	8
9	48	30.5	+45.5	125.7	47	55.1	+46.3	126.6	47	19.0	+47.0	127.5	46	42.1	+47.8	128.3	46	04.5	+48.6	129.2	45	26.3	+49.2	129.9	44	47.5	+49.9	130.7	44	08.1	+50.4	131.5	9
10	49	16.0	+44.9	124.7	48	41.4	+45.8	125.7	48	06.0	+46.6	126.6	47	29.9	+47.4	127.4	46	53.1	+48.1	128.3	46	15.5	+48.5	129.1	45	37.4	+49.5	129.9	44	58.5	+50.2	130.7	10
11	50	0.9	+44.4	123.7	49	27.2	+45.3	124.7	48	52.6	+46.2	125.6	48	17.3	+47.0	126.5	47	41.2	+47.8	127.4	47	04.4	+48.5	128.3	46	26.9	+49.2	129.1	45	48.7	+49.9	129.9	11
12	50	45.3	+43.8	122.6	50	12.5	+44.7	123.7	49	38.8	+45.6	124.6	49	04.3	+46.4	125.6	48	29.0	+47.2	126.5	47	52.9	+48.0	127.4	47	16.1	+48.8	128.3	46	38.6	+49.5	129.1	12
13	51	29.1	+43.1	121.6	50	57.2	+44.1	122.6	50	24.4	+45.1	123.6	49	50.7	+46.0	124.6	49	16.2	+46.9	125.6	48	40.9	+47.7	126.5	47	28.1	+49.1	128.3	13				
14	52	12.2	+42.5	120.4	51	41.3	+43.6	121.5	51	09.5	+44.5	122.6	50	36.7	+45.5	123.6	50	03.1	+46.3	124.6	49	28.6	+47.1	125.6	48	17.2	+48.7	127.4	14				
15	52	54.7	+41.8	119.3	52	24.9	+42.8	120.4	51	54.0	+43.9	121.5	51	22.2	+44.8	122.6	50	49.4	+45.8	123.6	50	15.7	+46.7	124.6	49	41.2	+47.5	125.6	49	05.9	+48.3	126.5	15
16	53	36.5	+41.6	118.1	53	07.7	+42.2	119.2	52	37.9	+43.2	120.4	52	07.0	+44.3	121.5	51	35.2	+45.2	122.6	51	02.4	+46.2	123.6	50	28.7	+47.1	124.6	49	54.2	+47.9	125.6	16
17	54	17.5	+40.3	116.8	53	49.9	+41.4	118.0	53	21.1	+42.6	119.2	52	51.3	+43.6	120.4	52	20.4	+44.7	121.5	51	48.6	+45.6	122.6	51	15.8	+46.5	123.7	50	42.1	+47.4	124.7	17
18	54	57.8	+39.4	115.5	54	31.3	+40.7	116.8	54	03.7	+41.8	118.0	53	34.9	+43.0	119.2	53	05.1	+44.0	120.4	52	34.2	+45.0	121.5	51	29.5	+46.9	123.7	50	18.8	+44.3	124.7	18
19	55	37.2	+38.6	114.2	55	12.0	+39.8	115.5	54	45.5	+41.1	116.8	54	17.9	+42.2	118.1	53	49.1	+43.3	119.3	53	19.2	+44.4	120.4	52	48.3	+45.4	121.6	52	16.4	+46.3	122.7	19
20	56	15.8	+37.6	112.9	55	51.8	+39.0	114.2	55	26.6	+40.2	115.5	55	00.1	+41.4	116.8	54	32.4	+42.6	118.1	54	03.6	+43.7	119.3	53	33.7	+44.8	120.5	53	02.7	+45.8	121.6	20
21	56	53.4	+36.6	111.4	56	30.8	+38.0	112.8	56	06.8	+39.4	114.2	55	41.5	+40.7	115.5	55	15.0	+41.9	116.9	54	47.3	+43.1	118.1	54	18.5	+44.1	119.4	53	48.5	+45.2	120.6	21
22	57	30.0	+35.6	110.0	57	08.8	+37.0	111.4	56	46.2	+38.4	112.9	56	22.2	+39.7	114.2	55	56.9	+41.0	115.6	55	30.3	+42.3	116.9	55	02.6	+43.4	118.2	54	33.7	+44.5	119.4	22
23	58	05.6	+34.4	108.5	57	45.8	+36.0	110.0	57	24.6	+37.4	111.4	57	01.9	+38.9	112.9	56	37.9	+40.2	114.3	56	12.6	+41.5	115.6	55	46.0	+42.7	117.0	55	18.2	+43.8	118.3	23
24	58	40.0	+33.3	106.9	58	21.8	+34.9	108.5	58	02.0	+36.4	110.0	57	40.8	+37.9	111.5	57	18.1	+39.3	112.9	56	28.7	+41.9	115.7	56	02.0	+43.1	117.1	24				
25	59	13.3	+32.0	105.3	58	56.7	+33.7	106.9	58	38.4	+35.3	108.5	58	18.7	+36.8	110.0	57	57.4	+38.3	111.5	57	34.7	+39.7	113.0	57	10.6	+41.0	114.4	56	45.1	+42.3	115.8	25
26	59	45.3	+30.8	103.6	59	30.4	+32.4	105.3	59	13.7	+34.2	106.9	58	55.5	+35.7	108.5	58	35.7	+37.3	110.0	58	14.4	+38.7	111.6	57	51.6	+40.1	113.0	57	27.4	+41.5	114.5	26
27	60	16.1	+29.3	101.9	60	02.8	+31.2	103.6	59	47.9	+32.9	105.3	59	31.2	+34.6	106.9	59	13.0	+36.1	108.5	58	53.1	+37.7	110.1	58	31.7	+39.2	111.6	58	08.9	+40.5	113.1	27
28	60	45.4	+28.0	100.1	60	34.0	+29.8	101.9	60	20.8	+31.5	103.6	60	05.8	+33.3	105.3	59	49.1	+35.0	107.0	59	30.8	+36.6	108.6	59	10.9	+38.1	110.2	58	49.4	+39.6	111.7	28
29	61	13.4	+26.4	98.3	61	03.8	+28.3	99.3	61	29.4	+30.3	100.1	60	39.1	+32.0	101.9	60	39.1	+32.0	103.6	60	07.4	+35.4	107.0	59	49.0	+37.1	108.7	59	29.0	+38.6	110.3	29
30	61	39.8	+24.8	96.4	61	32.1	+26.8	98.3	61	22.5	+28.8	100.1	61	11.1	+30.6	101.9	60	57.9	+32.4	103.6	60	42.8	+34.2	105.4	60	26.1	+35.9	107.1	60	07.6	+37.5	108.7	30
31	62	0.6	+23.2	94.5	61	58.9	+25.2	96.4	61	51.3	+27.2	98.2	61	41.7	+29.2	100.1	61	30.3	+31.1	101.9	61	17.0	+32.8	103.7	61	02.0	+34.6	105.4	60	45.1	+36.3	107.2	31
32	62	27.8	+21.4	92.5	62	24.1	+23.6	94.4	62	18.5	+25.6	96.3	62	10.9	+27.6	98.2	62	01.4	+29.4	100.1	61	49.9	+31.5	101.9	61	36.6	+33.3	103.7	61	21.4	+35.1	105.5	32
33	62	49.																															

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 33° , 327°

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.												
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z													
0	41	22.0	-49.3	133.5	40	40.5	-49.9	134.1	39	58.5	-50.4	134.7	39	16.1	-51.0	135.3	38	33.2	-51.4	135.9	37	50.0	-51.9	136.4	37	06.3	-52.3	136.9	36	22.3	-52.7	137.4	0				
1	40	32.7	-49.7	134.2	39	50.6	-50.2	134.8	39	08.1	-50.7	135.4	38	25.1	-51.2	136.0	37	41.8	-51.7	136.5	36	58.1	-52.1	137.0	36	14.0	-52.5	137.5	35	29.6	-53.0	138.0	1				
2	39	43.0	-49.9	135.0	39	00.4	-50.4	135.5	38	17.4	-51.0	136.1	37	33.9	-51.4	136.6	36	50.1	-51.8	137.2	36	06.0	-52.3	137.7	35	21.5	-52.7	138.1	34	36.6	-53.1	138.6	2				
3	38	53.1	-50.2	135.7	38	10.0	-50.7	136.2	37	26.4	-51.1	136.8	36	42.5	-51.6	137.3	35	58.3	-52.1	137.8	35	13.7	-52.5	138.3	34	28.8	-52.9	138.7	33	43.5	-53.2	139.2	3				
4	38	02.9	-50.4	136.4	37	19.3	-50.9	136.9	36	35.3	-51.4	137.4	35	50.9	-51.8	137.9	35	06.2	-52.2	138.4	34	21.2	-52.6	138.8	33	35.9	-53.0	139.3	32	50.3	-53.4	139.7	4				
5	37	12.5	-50.7	137.1	36	28.4	-51.2	137.6	35	43.9	-51.6	138.1	34	59.1	-52.0	138.5	34	14.0	-52.4	139.0	33	28.6	-52.8	139.4	32	42.9	-53.2	139.8	31	56.9	-53.6	140.3	5				
6	36	21.8	-50.9	137.7	35	37.2	-51.3	138.2	34	52.3	-51.7	138.7	34	07.1	-52.1	139.1	33	21.6	-52.6	139.6	32	35.8	-53.0	140.0	31	49.7	-53.3	140.4	30	03.3	-53.6	140.8	6				
7	35	30.9	-51.0	138.4	34	45.9	-51.5	138.8	34	00.6	-51.9	139.3	33	15.0	-52.4	139.7	32	29.0	-52.7	140.1	31	42.8	-53.1	140.5	30	56.4	-53.5	140.9	30	09.7	-53.8	141.3	7				
8	34	39.9	-51.3	139.0	33	54.4	-51.7	139.5	33	08.7	-52.2	139.9	32	22.6	-52.5	140.3	31	36.3	-52.9	140.7	30	49.7	-53.2	141.1	30	20.9	-53.5	141.5	29	15.9	-53.9	141.8	8				
9	33	48.6	-51.5	139.7	33	02.7	-51.8	140.1	32	16.5	-52.2	140.5	31	30.1	-52.6	140.9	30	43.4	-53.0	141.3	29	56.5	-53.3	141.6	29	09.4	-53.7	142.0	28	22.0	-54.0	142.3	9				
10	32	57.1	-51.6	140.3	32	10.8	-52.0	140.7	31	24.3	-52.4	141.1	30	37.5	-52.8	141.4	29	50.4	-53.1	141.8	29	03.2	-53.5	142.2	28	15.7	-53.8	142.5	27	28.0	-54.1	142.8	10				
11	32	05.5	-51.9	140.9	31	18.8	-52.2	141.3	30	31.9	-52.6	141.6	29	44.7	-52.9	142.0	28	57.3	-53.2	142.3	28	09.7	-53.6	142.7	27	21.9	-53.8	143.0	26	33.9	-54.2	143.3	11				
12	31	13.6	-51.9	141.5	30	26.6	-52.4	141.8	29	39.3	-52.7	142.2	28	51.8	-53.1	142.5	28	04.1	-53.4	142.9	27	16.1	-53.7	143.2	26	28.0	-54.0	143.5	25	39.7	-54.3	143.8	12				
13	30	21.7	-52.2	142.0	29	34.2	-52.4	142.4	28	46.6	-52.8	142.7	27	58.7	-53.1	143.1	27	10.7	-53.5	143.4	26	22.4	-53.8	143.7	25	34.0	-54.1	144.0	24	45.4	-54.4	144.2	13				
14	29	29.5	-52.2	142.6	28	41.8	-52.7	143.0	27	53.8	-53.0	143.3	27	05.6	-53.3	143.6	26	17.2	-53.6	143.9	25	28.6	-53.8	144.2	24	39.9	-54.2	144.4	23	51.0	-54.4	144.7	14				
15	28	37.3	-52.4	143.2	27	49.1	-52.7	143.5	27	00.8	-53.1	143.8	26	12.3	-53.4	144.1	25	23.6	-53.7	144.4	24	34.8	-54.0	144.7	23	45.7	-54.2	144.9	22	56.6	-54.6	145.2	15				
16	27	44.9	-52.6	143.7	26	07.7	-53.1	144.3	25	18.9	-53.5	144.6	24	29.9	-53.8	144.9	23	40.8	-54.1	145.1	22	51.5	-54.4	145.4	22	02.0	-54.6	145.6	21	17.2	-55.0	145.8	20	33.9	-55.2	146.0	21
17	26	52.3	-52.6	144.3	26	03.5	-52.9	144.6	25	14.6	-53.3	144.8	24	25.4	-53.6	145.1	23	36.1	-53.8	145.4	22	46.7	-54.2	145.6	21	57.1	-54.4	145.8	21	07.4	-54.7	146.1	17				
18	25	59.7	-52.8	144.8	25	10.6	-53.1	145.1	24	21.3	-53.4	145.3	23	31.8	-53.6	145.6	22	42.3	-54.0	145.8	21	52.5	-54.2	146.1	20	12.7	-54.7	146.5	18	22.0	-55.0	146.8	19				
19	25	06.9	-52.9	145.3	24	17.5	-53.2	145.6	23	27.9	-53.5	145.8	22	38.2	-53.8	146.1	20	58.3	-54.3	146.5	19	08.2	-54.6	146.7	19	18.0	-54.8	146.9	19								
20	24	14.0	-53.0	145.9	23	24.3	-53.3	146.1	22	34.4	-53.6	146.3	21	44.4	-53.8	146.6	20	54.3	-54.1	146.8	20	04.0	-54.4	147.0	19	13.6	-54.6	147.2	18	23.2	-54.9	147.4	20				
21	23	21.0	-53.1	146.4	22	31.0	-53.4	146.6	21	40.8	-53.6	146.8	20	50.6	-54.0	147.0	20	00.2	-54.2	147.2	19	09.6	-54.4	147.4	18	19.0	-54.7	147.6	17	28.3	-54.9	147.8	21				
22	22	27.9	-53.2	146.9	21	37.6	-53.4	147.1	20	47.2	-53.7	147.3	19	56.6	-54.0	147.5	19	06.0	-54.3	147.7	18	15.2	-54.5	147.9	17	24.3	-54.7	148.0	16	33.4	-55.0	148.2	22				
23	21	34.7	-53.2	147.4	20	44.2	-53.6	147.6	19	53.5	-53.9	147.8	19	02.6	-54.0	148.0	18	11.7	-54.3	148.1	17	20.7	-54.5	148.3	16	29.6	-54.8	148.5	15	38.4	-55.0	148.6	23				
24	20	41.5	-53.4	147.9	19	50.6	-53.6	148.1	18	59.6	-53.8	148.3	18	08.6	-54.2	148.4	17	17.4	-54.4	148.6	16	26.2	-54.7	148.8	15	34.8	-54.8	149.0	14	43.4	-55.1	149.0	24				
25	19	48.1	-53.4	148.4	18	57.0	-53.7	148.5	18	05.8	-54.0	148.7	17	14.4	-54.1	148.9	16	23.0	-54.4	149.0	15	31.5	-54.6	149.2	14	40.0	-54.9	149.3	13	48.3	-55.1	149.4	25				
26	18	54.7	-53.5	148.8	18	03.3	-53.8	149.0	17	11.8	-54.0	149.2	16	20.3	-54.3	149.3	15	28.6	-54.5	149.5	14	36.9	-54.7	149.6	13	52.3	-55.1	149.9	26								
27	18	01.2	-53.6	149.3	17	09.5	-53.8	149.5	16	17.8	-54.0	149.6	15	26.0	-54.3	149.8	14	34.1	-54.5	149.9	13	42.2	-54.8	150.0	12	50.2	-55.0	150.2	11	58.1	-55.2	150.3	27				
28	17	07.6	-53.6	149.8	16	15.7	-53.9	149.9	15	23.8	-54.2	150.1	14	31.7	-54.3	150.2	13	29.6	-54.5	150.3	12	47.4	-54.7	150.5	11	02.9	-55.0	150.7	10	07.7	-55.2	151.1	29				
29	16	51.0	-53.9	150.3	10	51.7	-54.2	150.6	9	04.0	-54.4	152.7	9	05.0	-54.5	152.8	8	16.9	-54.8	153.3	6	22.3	-55.0	153.3	5	29.7	-55.2	153.4	4	36.0	-55.3	153.4	35				
30	15	51.0	-54.0	150.3	9	57.5	-54.2	151.3	8	09.6	-54.4	153.6	7	15.9	-54.7	153.6	6	22.1	-54.8	153.7	5	28.3	-55.0	153.7	4	34.5	-55.2	153.8	36								
31	14	20.7	-54.1	150.5	4	31.8	-54.5	150.7	3	37.3	-54.5	150.7	2	42.6	-54.7	150.7	1	47.9	-54.7	150.7	0	53.1	-55.0	150.7	0	01.5	-55.2	150.7	40								
32	14	32.5	-54.2	150.6	3	37.6	-54.3	150.6	2	42.8	-54.5	150.6	1	47.9	-54.7	150.6	0	53.1	-54.9	150.6	0	01.8	+54.9	23.5	0	56.7	+55.1	23.5	1	51.5	+55.4	23.9	42				
33	13	38.3	-54.2	150.6	2	43.3</td																															

34°, 326° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.								
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z									
0	40	47.4	+48.6	132.4	40	06.7	+49.2	133.0	39	25.6	+49.7	133.6	38	43.9	+50.4	134.2	38	01.9	+50.8	134.8	37	19.4	+51.4	135.3	36	36.6	+51.8	135.8	35	53.3	+52.3	136.4	0
1	41	36.0	+48.4	131.6	40	55.9	+49.0	132.3	40	15.3	+49.6	132.9	39	34.3	+50.1	133.5	38	52.7	+50.7	134.1	38	10.8	+51.1	134.7	37	28.4	+51.6	135.2	36	45.6	+52.1	135.7	1
2	42	24.4	+47.9	130.8	41	44.9	+48.6	131.5	41	04.9	+49.2	132.1	40	24.4	+49.8	132.8	39	43.4	+50.3	133.4	39	01.9	+50.9	134.0	38	20.0	+51.4	134.6	37	37.7	+51.9	135.1	2
3	43	12.3	+47.6	130.0	42	33.5	+48.3	130.7	41	54.1	+48.9	131.4	41	14.2	+49.5	132.0	40	33.7	+50.1	132.7	39	52.8	+50.6	133.3	39	11.4	+51.2	133.9	38	29.6	+51.7	134.5	3
4	43	59.9	+47.3	129.2	43	21.8	+47.9	129.9	42	43.0	+48.6	130.6	42	03.7	+49.2	131.3	41	23.8	+49.8	132.0	40	43.4	+50.4	132.6	40	02.6	+50.9	133.2	39	21.3	+51.4	133.8	4
5	44	47.2	+46.8	128.3	44	09.7	+47.5	129.1	43	31.6	+48.2	129.8	42	52.9	+48.9	130.5	42	13.6	+49.5	131.2	41	33.8	+50.1	131.9	40	53.5	+50.7	132.5	40	12.7	+51.2	133.2	5
6	45	34.0	+46.4	127.4	44	57.2	+47.2	128.2	44	19.8	+47.9	129.0	43	41.8	+48.5	129.7	43	03.1	+49.2	130.4	42	23.9	+49.8	131.1	41	44.2	+50.4	131.8	41	03.9	+51.0	132.5	6
7	46	20.4	+46.0	126.5	45	44.4	+46.7	127.3	45	07.7	+47.4	128.1	44	30.3	+48.2	128.9	43	52.3	+48.9	129.7	43	13.7	+49.5	130.4	42	34.6	+50.1	131.1	41	54.9	+50.7	131.8	7
8	47	06.4	+45.5	125.6	46	31.1	+46.3	126.4	45	55.1	+47.1	127.3	45	18.5	+47.8	128.1	44	41.2	+48.5	128.8	44	03.2	+49.2	129.6	43	24.7	+49.8	130.3	42	45.6	+50.4	131.0	8
9	47	51.9	+44.9	124.6	47	17.4	+45.8	125.5	46	42.2	+46.6	126.4	46	06.3	+47.4	127.2	45	29.7	+48.1	128.0	44	54.2	+48.4	128.8	44	14.5	+49.5	129.6	43	36.0	+50.1	130.3	9
10	48	36.8	+44.5	123.6	48	03.2	+45.4	124.5	47	28.8	+46.2	125.4	46	53.7	+47.0	126.3	46	17.8	+47.7	127.2	45	41.2	+48.5	128.0	45	04.0	+49.1	128.8	44	26.1	+49.8	129.5	10
11	49	21.3	+43.9	122.6	48	48.6	+44.8	123.5	48	15.0	+45.7	124.5	47	40.7	+46.5	125.4	47	05.5	+47.4	126.3	46	29.7	+48.1	127.1	45	53.1	+48.8	127.9	45	15.9	+49.5	128.7	11
12	50	05.2	+43.3	121.5	49	33.4	+44.3	122.5	49	00.7	+45.2	123.5	48	27.2	+46.0	124.4	47	52.9	+46.8	125.4	47	17.8	+47.6	126.2	46	41.9	+48.4	127.1	46	05.4	+49.1	127.9	12
13	50	48.5	+42.7	120.4	50	17.7	+43.6	121.5	49	45.9	+44.6	122.5	49	13.2	+45.6	123.5	48	39.7	+46.4	124.4	48	05.4	+47.2	125.3	47	30.3	+48.0	126.2	46	54.5	+48.7	127.1	13
14	51	31.2	+42.0	119.3	51	01.3	+43.1	120.4	50	30.5	+44.1	121.4	49	58.8	+45.0	122.5	49	26.1	+45.9	123.5	48	52.6	+46.8	124.4	47	43.2	+48.4	126.2	44	21.2	+47.0	127.2	14
15	52	13.2	+41.4	118.2	51	44.4	+42.4	119.3	51	14.6	+43.4	120.4	50	43.8	+44.4	121.4	50	12.0	+45.4	122.5	49	39.4	+46.2	123.5	49	05.9	+47.1	124.4	48	31.6	+47.9	125.4	15
16	52	54.6	+40.5	117.0	52	26.8	+41.7	118.1	51	58.0	+42.8	119.3	51	28.2	+43.8	120.4	50	57.4	+44.8	121.4	50	25.6	+45.8	122.5	49	53.0	+46.6	123.5	49	19.5	+47.4	124.4	16
17	53	35.1	+39.9	115.7	53	08.5	+41.0	116.9	52	40.8	+42.1	118.1	52	12.0	+43.2	119.2	51	42.2	+44.2	120.4	51	11.4	+45.2	121.4	50	39.6	+46.1	122.5	50	06.9	+47.0	123.5	17
18	54	15.0	+38.9	114.5	53	49.5	+40.2	115.7	53	22.9	+41.4	116.9	52	26.4	+42.5	118.1	52	11.6	+43.6	119.3	51	56.6	+44.5	120.4	51	25.7	+45.6	122.5	18				
19	54	53.9	+38.1	113.1	54	29.7	+39.4	114.4	54	04.3	+40.6	115.7	53	37.7	+41.8	116.9	53	10.0	+42.9	118.1	52	41.1	+44.0	119.3	52	11.3	+45.0	120.4	51	40.4	+46.0	121.5	19
20	55	32.0	+37.2	111.8	55	09.1	+38.5	113.1	54	44.9	+39.8	114.4	54	19.5	+41.0	115.7	53	52.9	+42.2	116.9	53	25.1	+43.3	118.2	52	56.3	+44.3	119.3	52	26.4	+45.3	120.5	20
21	56	09.2	+36.2	110.4	55	47.6	+37.6	111.8	55	24.7	+38.9	113.1	55	00.5	+40.2	114.4	54	35.1	+41.4	115.7	54	08.4	+42.6	117.0	53	40.6	+43.7	118.2	53	11.7	+44.8	119.4	21
22	56	45.4	+35.2	109.0	56	25.2	+36.6	110.4	56	03.6	+38.0	111.8	55	40.7	+39.4	113.1	55	16.5	+40.6	114.5	54	51.0	+41.9	115.8	54	24.3	+43.1	117.0	53	56.5	+44.1	118.3	22
23	57	20.6	+34.1	107.5	57	01.8	+35.6	108.9	56	41.6	+37.1	110.4	56	20.1	+38.4	111.8	55	57.1	+39.8	113.2	55	32.9	+41.0	114.5	55	07.4	+42.2	115.8	54	40.6	+43.4	117.1	23
24	57	54.7	+32.9	105.9	57	37.4	+34.5	107.4	57	18.7	+36.0	108.9	56	58.5	+37.5	110.4	56	36.9	+38.9	111.8	56	13.9	+40.2	113.2	55	49.6	+41.5	114.6	55	24.0	+42.7	115.9	24
25	58	27.6	+31.7	104.3	58	11.9	+33.4	105.9	57	54.7	+34.9	107.4	57	36.0	+36.4	108.9	57	15.8	+37.9	110.4	56	54.1	+39.3	111.9	56	31.1	+40.6	113.3	56	06.7	+41.9	114.6	25
26	58	59.3	+30.4	102.7	58	45.3	+32.1	104.3	58	29.6	+33.8	105.9	58	12.4	+35.4	107.5	57	53.7	+36.8	109.0	57	33.4	+38.0	110.5	57	11.7	+39.8	111.9	56	48.6	+41.1	113.3	26
27	59	29.7	+29.1	101.0	59	17.4	+30.4	102.7	59	03.4	+32.6	104.3	58	47.8	+34.2	105.9	58	30.5	+35.9	107.5	58	11.8	+37.3	109.0	57	51.5	+38.7	110.5	57	29.7	+40.2	112.0	27
28	59	58.8	+27.7	99.3	59	48.3	+29.5	101.0	59	36.0	+31.3	102.7	59	22.0	+33.0	104.3	59	06.4	+34.6	105.9	58	49.1	+36.2	107.5	58	30.2	+37.8	109.1	58	09.9	+39.2	110.6	28
29	60	26.5	+26.3	97.5	60	17.8	+28.0	99.2	60	07.3	+29.3	100.1	59	55.0	+31.7	102.7	59	41.0	+33.4	104.3	59	25.3	+35.1	106.0	59	08.0	+36.7	107.6	58	49.1	+38.2	109.2	29
30	60	52.8	+24.6	95.7	60	45.9	+26.6	97.4	60	37.2	+28.6	99.2	60	26.7	+30.4	100.9	60	14.4	+32.2	102.7	60	00.4	+33.9	104.4	59	44.7	+35.5	106.0	59	27.3	+37.2	107.7	30
31	61	17.4	+23.1	93.8	61	12.5	+25.1	95.6	61	05.8	+27.0	97.4	60	57.1	+28.9	99.2	60	46.6	+30.8	101.0	60	34.3	+32.6	102.7	60	20.2	+34.4	104.4	60	04.5	+36.0	106.1	31
32	61	40.5	+21.4	91.8	61	37.6	+23.5	93.7	61	32.8	+25.5	95.5	61	26.0	+27.5	97.4	61	12.4	+29.4	99.2	61	06.9	+31.2	101.0	60								

LATITUDE CONTRARY NAME TO DECLINATION **L.H.A. 34°, 326°**

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.								
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z									
0	40	47.4	-48.9	132.4	40	06.7	-49.5	133.0	39	25.6	-50.1	133.6	38	43.9	-50.5	134.2	38	01.9	-51.1	134.8	37	19.4	-51.5	135.3	36	36.6	-52.0	135.8	35	53.3	-52.4	136.4	0
1	39	58.5	-49.3	133.1	39	17.2	-49.8	133.7	38	35.5	-50.3	134.3	37	53.4	-50.9	134.9	37	10.8	-51.3	135.4	36	27.9	-51.8	136.0	35	44.6	-52.2	136.5	35	00.9	-52.6	136.9	1
2	39	09.2	-49.5	133.9	38	27.4	-50.0	134.5	37	45.2	-50.6	135.0	37	02.5	-51.0	135.6	36	19.5	-51.5	136.1	35	36.1	-51.9	136.6	34	52.4	-52.4	137.1	34	08.3	-52.8	137.5	2
3	38	19.7	-49.7	134.6	37	37.4	-50.3	135.2	36	54.6	-50.7	135.7	36	11.5	-51.2	136.2	35	28.0	-51.7	136.7	34	44.2	-52.2	137.2	34	00.0	-52.6	137.7	33	15.5	-53.0	138.1	3
4	37	30.0	-50.1	135.3	36	47.1	-50.5	135.9	36	03.9	-51.0	136.4	35	20.3	-51.5	136.9	34	36.3	-51.9	137.3	33	52.0	-52.3	137.8	33	07.4	-52.7	138.2	32	22.5	-53.1	138.7	4
5	36	39.9	-50.2	136.0	35	56.6	-50.7	136.5	35	12.9	-51.2	137.0	34	28.8	-51.6	137.5	33	44.4	-52.0	137.9	32	59.7	-52.4	138.4	32	14.7	-52.2	138.8	31	29.4	-53.2	139.2	5
6	35	49.7	-50.5	136.7	35	05.9	-51.0	137.2	34	21.7	-51.4	137.6	33	37.2	-51.8	138.1	32	52.4	-52.3	138.5	32	07.3	-52.7	139.0	31	21.9	-53.0	139.4	30	36.2	-53.3	139.7	6
7	34	59.2	-50.7	137.4	34	14.9	-51.1	137.8	33	30.3	-51.6	138.3	32	45.4	-52.0	138.7	32	00.1	-52.3	139.1	31	14.6	-52.7	139.5	30	28.9	-53.2	139.9	29	42.9	-53.5	140.3	7
8	34	08.5	-50.9	138.0	33	23.8	-51.3	138.5	32	38.7	-51.7	138.9	31	53.4	-52.2	139.3	31	07.8	-52.6	139.7	30	21.9	-52.9	140.1	29	35.7	-53.2	140.4	28	49.4	-53.6	140.8	8
9	33	17.6	-51.0	138.6	32	32.5	-51.5	139.1	31	47.0	-51.9	139.5	30	01.2	-52.2	139.9	30	15.2	-52.6	140.3	29	29.0	-53.0	140.6	28	42.5	-53.4	141.0	27	55.8	-53.7	141.3	9
10	32	26.6	-51.3	139.3	31	41.0	-51.7	139.7	30	55.1	-52.1	140.1	30	09.0	-52.5	140.4	29	22.6	-52.8	140.8	28	36.0	-53.2	141.2	27	49.1	-53.5	141.5	27	02.1	-53.9	141.8	10
11	31	35.3	-51.4	139.9	30	49.3	-51.8	140.3	30	03.0	-52.2	140.6	29	16.5	-52.6	141.0	28	29.8	-53.0	141.3	27	42.8	-53.3	141.7	26	55.6	-53.6	142.0	26	08.2	-53.9	142.3	11
12	30	43.9	-51.6	140.5	29	57.5	-52.0	140.9	28	10.8	-52.3	141.2	28	23.9	-52.7	141.6	27	36.8	-53.0	141.9	26	49.5	-53.4	142.2	26	02.0	-53.7	142.5	25	14.3	-54.0	142.8	12
13	29	52.3	-51.8	141.1	29	05.5	-52.1	141.4	28	18.5	-52.5	141.8	27	31.2	-52.8	142.1	26	43.8	-53.2	142.4	25	56.1	-53.4	142.7	25	08.3	-53.8	143.0	24	20.3	-54.1	143.3	13
14	29	00.5	-51.9	141.7	28	13.4	-52.3	142.0	27	26.0	-52.6	142.3	26	38.4	-53.1	142.6	25	50.6	-53.3	142.9	24	02.7	-53.6	143.2	24	14.5	-53.9	143.5	23	26.2	-54.2	143.7	14
15	28	08.6	-52.0	142.2	27	21.1	-52.4	142.5	26	33.4	-52.8	142.9	25	45.4	-53.0	143.1	24	57.3	-53.3	143.4	24	09.1	-53.7	143.7	23	20.6	-53.9	144.0	22	32.0	-54.2	144.2	15
16	27	16.6	-52.2	142.8	26	28.7	-52.5	143.1	25	40.6	-52.8	143.4	24	52.4	-53.2	143.7	24	04.0	-53.5	143.9	23	15.4	-53.8	144.2	22	26.7	-54.1	144.4	21	37.8	-54.4	144.7	16
17	26	24.4	-52.3	143.3	25	36.2	-52.6	143.6	24	47.8	-53.0	143.9	23	59.2	-53.2	144.2	22	10.5	-53.6	144.4	21	21.6	-53.8	144.7	20	43.4	-54.4	145.1	17				
18	25	32.1	-52.4	143.9	24	43.6	-52.8	144.2	23	54.8	-53.0	144.4	23	06.0	-53.4	144.7	22	16.9	-53.6	144.9	21	27.8	-54.0	145.1	20	38.5	-54.3	145.4	18				
19	24	39.7	-52.5	144.4	23	50.8	-52.8	144.7	23	01.8	-53.2	144.9	21	23.3	-53.6	145.4	20	33.8	-54.0	145.6	19	44.2	-54.2	145.8	18	54.5	-54.5	146.0	19				
20	23	47.2	-52.7	145.0	22	58.0	-53.0	145.2	22	08.6	-53.2	145.4	21	19.2	-53.6	145.7	20	29.5	-53.8	145.9	19	39.8	-54.1	146.1	18	50.0	-54.4	146.3	18	00.0	-54.6	146.5	20
21	22	54.5	-52.7	145.5	22	05.0	-53.0	145.7	21	15.4	-53.3	145.9	20	25.6	-53.6	146.1	19	35.7	-53.8	146.3	18	45.7	-54.1	146.5	17	55.6	-54.4	146.7	17	05.4	-54.6	146.9	21
22	22	01.8	-52.8	146.0	21	12.0	-53.1	146.2	20	22.1	-53.4	146.4	19	32.0	-53.7	146.6	18	41.9	-54.0	146.8	17	51.6	-54.2	147.0	17	01.2	-54.4	147.2	16	10.8	-54.7	147.3	22
23	21	09.0	-53.0	146.5	20	18.9	-53.2	146.7	19	28.7	-53.5	146.9	18	38.3	-53.7	147.1	17	47.9	-54.0	147.3	16	57.4	-54.3	147.4	16	06.8	-54.6	147.6	15	16.1	-54.8	147.8	23
24	20	16.0	-53.0	147.0	19	25.7	-53.3	147.2	18	35.2	-53.6	147.4	17	44.6	-53.8	147.6	16	53.9	-54.1	147.7	15	12.2	-54.5	148.0	14	21.3	-54.8	148.2	24				
25	19	23.0	-53.1	147.5	18	32.4	-53.4	147.7	17	41.6	-53.6	147.9	16	50.8	-53.9	148.0	15	59.8	-54.1	148.2	14	08.8	-54.4	148.3	13	26.5	-54.8	148.6	25				
26	18	29.9	-53.1	148.0	17	39.0	-53.4	148.2	16	48.0	-53.7	148.3	15	56.9	-54.0	148.5	14	05.7	-54.2	148.6	13	23.1	-54.7	148.9	12	31.7	-54.9	149.0	26				
27	17	36.8	-53.3	148.5	16	45.6	-53.5	148.6	15	54.3	-53.8	148.8	14	02.9	-54.0	148.9	13	20.0	-54.5	149.2	12	28.4	-54.7	149.3	11	36.8	-54.9	149.4	27				
28	16	43.5	-53.3	149.0	15	52.1	-53.6	149.1	14	00.5	-53.8	149.3	13	48.9	-54.1	149.4	12	23.5	-54.5	149.6	11	33.7	-54.7	149.7	10	41.9	-55.0	149.8	28				
29	15	50.2	-53.3	149.4	14	58.5	-53.6	149.6	13	06.7	-54.0	150.0	12	37.0	-54.3	150.0	11	31.0	-54.5	150.1	10	39.0	-54.8	150.2	9	46.9	-54.9	150.2	29				
30	14	56.9	-53.5	149.9	14	04.9	-53.7	150.0	13	12.9	-53.9	150.2	12	20.8	-54.1	150.3	11	28.7	-54.4	150.4	10	36.5	-54.6	150.5	9	44.2	-54.7	150.6	30				
31	14	03.4	-53.4	150.4	13	11.2	-53.7	150.5	12	19.0	-54.0	150.6	11	26.7	-54.2	150.7	10	34.3	-54.4	150.8	9	41.9	-54.6	150.9	8	49.5	-54.9	151.0	31				
32	13	10.0	-53.6	150.9	12	17.5	-53.7	151.0	11	25.0	-54.0	151.1	10	32.5	-54.2	151.2	9	39.9	-54.4	151.2	8	47.3	-54.6	151.3	7	01.9	-55.0	151.5	32				
33	12	16.4	-53.6	151.3	11	23.8	-53.8	151.4	10	31.7	-54.0	151.5	9	28.3	-54.2	151.6	8	45.5	-54.5	151.7	7	52.7	-54.7	151.7	6	06.9	-55.1	151.9	33				
34	11	22.8	-53.6	151.8	10	30.0	-53.9	151.9	9	37.0	-54.0	152.0	8																				

35°, 325° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180° Zn=7
L.H.A. less than 180° Zn=360°-Z

	38°			39°			40°			41°			42°			43°			44°			45°			Dec.				
Dec.	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.				
0	40	12.2	+48.2	131.3	39	32.3	+48.8	131.9	38	52.0	+49.4	132.6	38	11.2	+49.9	133.1	37	29.9	+50.5	133.7	36	48.3	+51.0	134.2	35	23.8	+51.9	135.3	0
1	41	00.4	+47.9	130.5	40	21.1	+48.6	131.2	39	41.4	+49.1	131.8	39	01.1	+49.7	132.4	38	20.4	+50.3	133.0	37	39.3	+50.8	133.6	36	15.7	+51.8	134.7	1
2	41	48.3	+47.5	129.7	41	09.7	+48.1	130.4	40	30.5	+48.8	131.1	39	50.8	+49.4	131.7	39	10.7	+50.0	132.3	38	30.1	+50.5	132.9	37	07.5	+51.5	134.0	2
3	42	35.8	+47.2	128.9	41	57.8	+47.9	129.6	41	19.3	+48.5	130.3	40	40.2	+49.2	131.0	40	00.7	+49.7	131.6	39	20.6	+50.3	132.2	38	59.0	+51.4	133.4	3
4	43	23.0	+46.8	128.1	42	45.7	+47.5	128.8	42	07.8	+48.2	129.5	41	29.4	+48.8	130.2	40	50.4	+49.4	130.9	40	10.9	+50.0	131.5	39	30.9	+50.5	132.1	4
5	44	09.8	+46.4	127.2	43	33.2	+47.1	128.0	42	56.0	+47.8	128.7	42	18.2	+48.5	129.4	41	39.8	+49.1	130.1	41	00.9	+49.7	130.8	40	21.4	+50.3	131.4	5
6	44	56.2	+45.9	126.3	44	20.3	+46.7	127.1	43	43.8	+47.4	127.9	43	06.7	+48.1	128.6	42	28.9	+48.8	129.3	41	50.6	+49.4	130.0	40	32.3	+50.7	131.4	6
7	45	42.1	+45.5	125.4	45	07.0	+46.3	126.2	44	31.2	+47.1	127.0	43	54.8	+47.8	127.8	43	17.7	+48.5	128.5	42	40.0	+49.2	129.3	41	23.0	+50.3	130.6	7
8	46	27.6	+45.1	124.5	45	53.3	+45.9	125.3	45	18.3	+46.6	126.1	44	42.6	+47.4	126.9	44	06.2	+48.1	127.7	43	29.2	+48.7	128.5	42	13.3	+50.1	129.9	8
9	47	12.7	+44.5	123.5	46	39.2	+45.4	124.4	46	04.9	+46.2	125.2	45	30.0	+46.9	126.1	44	53.4	+47.7	126.9	44	17.9	+48.5	127.7	43	41.0	+49.1	128.4	9
10	47	57.2	+44.0	122.5	47	24.6	+44.9	123.4	46	51.1	+45.8	124.3	46	16.9	+46.6	125.2	45	42.0	+47.3	126.0	45	06.4	+48.0	126.8	44	30.1	+48.7	127.6	10
11	48	41.2	+43.5	121.5	48	09.5	+44.3	122.4	47	36.9	+45.2	123.4	47	03.5	+46.1	124.3	46	29.3	+46.9	125.1	45	54.4	+47.7	126.0	44	18.8	+48.4	126.8	11
12	49	24.7	+42.8	120.4	48	53.8	+43.9	121.4	48	22.1	+44.8	122.4	47	49.6	+45.6	123.3	47	16.2	+46.5	124.2	46	42.1	+47.3	125.1	45	31.6	+48.8	126.8	12
13	50	07.5	+42.3	119.3	49	37.7	+43.2	120.4	49	06.9	+44.2	121.4	48	35.2	+45.1	122.3	48	02.7	+46.0	123.3	47	29.4	+46.8	124.2	46	20.4	+48.3	126.0	13
14	50	49.8	+41.5	118.2	50	20.9	+42.6	119.3	49	51.1	+43.6	120.3	49	20.3	+44.6	121.3	48	48.7	+45.5	122.3	47	42.9	+47.1	124.2	47	08.7	+48.0	125.1	14
15	51	31.3	+40.9	117.1	51	03.5	+42.0	118.2	50	34.7	+43.0	119.3	50	04.9	+44.0	120.3	49	34.2	+44.9	121.3	49	02.5	+45.9	122.3	48	30.0	+46.7	123.3	15
16	52	12.2	+40.2	115.9	51	45.5	+41.3	117.0	51	17.7	+42.4	118.1	50	48.9	+43.4	119.2	50	19.1	+44.4	120.3	49	48.4	+45.3	121.3	49	16.7	+46.3	122.3	16
17	52	52.4	+39.3	114.7	52	26.8	+40.5	115.9	52	00.1	+41.6	117.0	51	32.3	+42.7	118.1	51	03.5	+43.8	119.2	50	33.7	+44.8	120.3	50	03.0	+45.7	121.3	17
18	53	31.7	+38.6	113.4	53	07.3	+39.8	114.6	52	41.7	+41.0	115.8	52	15.0	+42.1	117.0	51	47.3	+43.1	118.1	51	18.5	+44.2	119.2	50	17.9	+46.1	121.4	18
19	54	10.3	+37.7	112.1	53	47.1	+39.0	113.4	53	22.7	+40.2	114.6	52	57.1	+41.4	115.8	52	30.4	+42.5	117.0	52	02.7	+43.5	118.1	51	33.8	+44.6	119.3	19
20	54	48.0	+36.7	110.8	54	26.1	+38.1	112.1	54	02.9	+39.4	113.4	53	38.5	+40.6	114.6	53	12.9	+41.8	115.8	52	46.2	+42.9	117.0	52	18.4	+44.0	118.2	20
21	55	24.7	+35.9	109.4	55	04.2	+37.2	110.7	54	42.3	+38.5	112.1	54	19.1	+39.8	113.4	53	54.7	+41.0	114.6	53	29.1	+42.2	115.9	53	02.4	+43.3	117.1	21
22	56	00.6	+34.8	108.0	55	41.4	+36.2	109.4	55	20.8	+37.6	110.7	54	58.9	+39.0	112.1	54	35.7	+40.3	113.4	54	11.3	+41.5	114.6	53	45.7	+42.6	115.9	22
23	56	35.4	+33.7	106.5	56	17.6	+35.2	107.9	55	58.4	+36.7	109.3	55	37.9	+38.0	110.7	55	16.0	+39.3	112.1	54	52.8	+40.6	113.4	54	28.3	+41.9	114.7	23
24	57	09.1	+32.6	105.0	56	52.8	+34.2	106.5	56	35.1	+35.6	107.9	56	15.9	+37.1	109.3	55	55.3	+38.5	110.7	55	10.2	+41.1	113.4	54	45.7	+42.3	114.7	24
25	57	41.7	+31.4	103.4	57	27.0	+33.0	104.9	57	10.7	+34.6	106.4	56	53.0	+36.1	107.9	56	33.8	+37.6	109.4	56	13.2	+39.0	110.8	55	51.3	+40.2	112.2	25
26	58	13.1	+30.2	101.8	58	00.0	+31.8	103.4	57	45.3	+33.5	104.9	57	29.1	+35.0	106.4	57	11.4	+36.5	107.9	56	52.2	+37.9	109.4	56	31.5	+40.7	112.2	26
27	58	43.3	+28.8	100.2	58	31.8	+30.6	101.8	58	18.8	+32.3	103.4	58	04.1	+33.9	104.9	57	47.9	+35.5	106.5	57	30.1	+37.0	108.0	56	50.2	+39.8	110.9	27
28	59	12.1	+27.5	98.5	59	02.4	+29.3	100.1	58	51.1	+31.0	101.7	58	38.0	+32.7	103.4	58	23.4	+34.3	104.9	58	07.1	+35.9	106.5	57	30.0	+38.9	109.5	28
29	59	39.6	+26.1	96.7	59	31.7	+27.9	98.4	59	22.1	+29.7	100.1	59	10.7	+31.5	101.7	58	57.7	+33.2	103.4	58	43.0	+34.0	105.0	58	26.7	+36.4	106.5	29
30	60	05.7	+24.5	94.9	59	59.6	+26.5	96.6	59	51.8	+28.3	98.4	59	42.2	+30.1	100.1	59	30.9	+31.9	101.7	59	17.8	+33.6	103.4	59	03.1	+35.3	105.0	30
31	60	30.2	+23.1	93.1	60	26.1	+25.0	94.8	60	20.1	+26.9	96.6	60	12.3	+28.8	98.3	60	02.8	+30.5	100.0	59	51.4	+32.4	101.7	59	38.4	+34.0	103.4	31
32	60	53.3	+21.3	91.2	60	51.1	+23.4	93.0	60	47.0	+24.5	94.8	60	41.1	+27.3	96.5	60	33.3	+29.2	98.3	60	23.8	+31.0	100.1	60	59.3	+34.5	103.5	32
33	61	14.6	+19.7	89.3	61	14.5	+21.7	91.1	61	12.4	+23.7	92.9	61	08.4	+25.8	94.7	61	02.5	+27.7	96.5	60	45.2	+31.4	100.1	60	33.8	+33.2	101.8	33
34	61	34.3	+18.0	87.3	61	31.6	+20.1	89.1	61	31.6	+22.2	91.0	61	34.2	+24.1	92.8	61	30.2	+26.4	94.6	61	24.4	+28.1	96.5	61	16.6	+30.1	98.3	34
35	61	52.3	+18.2	85.3	61	56.3	+17.9	87.1	62	58.3	+22.5	90.9	61	58.3	+22.5	90.9	62	55.6	+24.6	92.8	61	52.5	+26.6	94.6	61	38.9	+30.5	98.3	35
36	62	14.5	+16.5	83.2	62	14.5	+16.5	85.1	62	18.7	+18.6	87.0	62	20.8	+20.8	88.9	62	21.0	+22.8	90.8	62	19.1	+20.5	92.7	62	15.3	+27.0	94.6	36
37	62	22.7	+12.4	81.1																									

LATITUDE CONTRARY NAME TO DECLINATION **L.H.A. 35°, 325°**

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
0	40 12.2 -48.5	131.3	39 32.3 -49.1	131.9	38 52.0 -49.7	132.6	38 11.2 -50.2	133.1	37 29.9 -50.7	133.7	36 48.3 -51.2	134.2	36 06.2 -51.7	134.8	35 23.8 -52.2	135.3	35 23.8 -52.2	135.3	35 23.8 -52.2	135.3	34 31.6 -52.3	135.9	34 31.6 -52.3	135.9	0
1	39 23.7 -48.8	132.1	38 43.2 -49.4	132.7	38 02.3 -49.9	133.3	37 21.0 -50.5	133.8	36 39.2 -50.9	134.4	35 57.1 -51.4	134.9	35 14.5 -51.8	135.4	34 22.7 -52.1	136.0	33 39.3 -52.4	136.5	33 39.3 -52.4	136.5	32 22.7 -52.1	136.0	33 39.3 -52.4	136.5	1
2	38 34.9 -49.1	132.8	37 53.8 -49.6	133.4	37 12.4 -50.2	134.0	36 30.5 -50.6	134.5	35 48.3 -51.2	135.0	35 05.7 -51.7	135.5	34 22.7 -52.1	136.0	33 39.3 -52.4	136.5	33 39.3 -52.4	136.5	32 22.7 -52.1	136.0	33 39.3 -52.4	136.5	2		
3	37 45.8 -49.4	133.6	37 04.2 -49.9	134.1	36 22.2 -50.4	134.7	35 39.9 -50.9	135.2	34 57.1 -51.3	135.7	34 10.4 -51.7	136.1	33 30.6 -52.2	136.6	32 46.9 -52.7	137.1	32 46.9 -52.7	137.1	32 46.9 -52.7	137.1	31 39.3 -52.4	136.5	31 39.3 -52.4	136.5	3
4	36 56.4 -49.6	134.3	36 14.3 -50.1	134.8	35 31.8 -50.6	135.3	34 49.0 -51.1	135.8	34 05.8 -51.5	136.3	33 22.3 -52.0	136.8	32 38.4 -52.4	137.2	31 54.2 -52.8	137.6	31 54.2 -52.8	137.6	31 54.2 -52.8	137.6	31 54.2 -52.8	137.6	4		
5	36 06.8 -49.8	135.0	35 24.2 -50.3	135.5	34 41.2 -50.8	136.0	33 57.9 -51.3	136.5	33 14.3 -51.8	136.9	32 30.3 -52.1	137.3	31 46.0 -52.5	137.8	31 01.4 -52.9	138.2	31 01.4 -52.9	138.2	31 01.4 -52.9	138.2	31 01.4 -52.9	138.2	5		
6	35 17.0 -50.1	135.7	34 33.9 -50.6	136.2	33 50.4 -51.0	136.6	33 06.6 -51.4	137.1	32 22.5 -51.8	137.5	31 38.2 -52.3	137.9	30 53.5 -52.7	138.3	30 08.5 -53.0	138.7	30 08.5 -53.0	138.7	30 08.5 -53.0	138.7	30 08.5 -53.0	138.7	6		
7	34 26.9 -50.3	136.3	33 43.3 -50.7	136.8	32 59.4 -51.2	137.3	32 15.2 -51.6	137.7	31 30.7 -52.1	138.1	30 45.9 -52.5	138.5	30 00.8 -52.8	138.9	29 15.5 -53.2	139.3	29 15.5 -53.2	139.3	29 15.5 -53.2	139.3	29 15.5 -53.2	139.3	7		
8	33 36.6 -50.5	137.0	32 52.6 -51.0	137.4	32 08.2 -51.4	137.9	31 23.6 -51.8	138.3	30 38.6 -52.2	138.7	29 53.4 -52.5	139.1	29 08.0 -53.0	139.4	28 22.3 -53.3	139.8	28 22.3 -53.3	139.8	28 22.3 -53.3	139.8	28 22.3 -53.3	139.8	8		
9	32 46.1 -50.7	137.6	32 01.6 -51.1	138.1	31 16.8 -51.5	138.5	30 31.8 -52.0	138.9	29 46.4 -52.3	139.3	29 00.9 -52.8	139.6	28 15.0 -53.2	140.0	27 29.0 -53.5	140.3	27 29.0 -53.5	140.3	27 29.0 -53.5	140.3	27 29.0 -53.5	140.3	9		
10	31 55.4 -50.9	138.3	31 10.5 -51.3	138.7	30 25.3 -51.7	139.1	29 39.8 -52.1	139.5	28 54.1 -52.5	139.8	28 08.1 -52.8	140.2	27 22.0 -53.2	140.5	26 35.5 -53.5	140.8	26 35.5 -53.5	140.8	26 35.5 -53.5	140.8	26 35.5 -53.5	140.8	10		
11	31 04.5 -51.0	138.9	30 19.2 -51.5	139.3	29 33.6 -51.9	139.7	28 47.7 -52.2	140.0	28 01.6 -52.6	140.4	27 15.3 -53.0	140.7	26 28.8 -53.3	141.0	25 42.0 -53.6	141.3	25 42.0 -53.6	141.3	25 42.0 -53.6	141.3	25 42.0 -53.6	141.3	11		
12	30 13.5 -51.2	139.5	29 27.7 -51.6	139.9	28 41.7 -52.0	140.2	27 55.5 -52.4	140.6	27 09.0 -52.7	140.9	26 22.3 -53.0	141.2	25 35.5 -53.4	141.5	24 48.4 -53.7	141.8	24 48.4 -53.7	141.8	24 48.4 -53.7	141.8	24 48.4 -53.7	141.8	12		
13	29 22.3 -51.4	140.1	28 36.1 -51.8	140.5	27 49.7 -52.1	140.8	27 03.1 -52.5	141.1	26 16.3 -52.9	141.4	25 29.3 -53.2	141.7	24 42.1 -53.5	142.0	23 54.7 -53.9	142.3	23 54.7 -53.9	142.3	23 54.7 -53.9	142.3	23 54.7 -53.9	142.3	13		
14	28 30.9 -51.5	140.7	27 44.3 -51.9	141.0	26 57.6 -52.3	141.4	26 10.6 -52.6	141.7	25 23.4 -52.9	142.0	24 36.1 -53.3	142.3	23 48.6 -53.6	142.5	23 00.8 -53.9	142.8	23 00.8 -53.9	142.8	23 00.8 -53.9	142.8	23 00.8 -53.9	142.8	14		
15	27 39.4 -51.7	141.3	26 54.2 -52.0	141.6	26 05.3 -52.4	141.9	25 18.0 -52.7	142.2	24 30.5 -53.1	142.5	23 42.8 -53.4	142.8	22 55.0 -53.7	143.0	22 06.9 -53.9	143.3	22 06.9 -53.9	143.3	22 06.9 -53.9	143.3	22 06.9 -53.9	143.3	15		
16	26 47.7 -51.8	141.9	26 00.4 -52.2	142.2	25 12.9 -52.5	142.5	24 25.3 -52.9	142.7	23 37.4 -53.1	143.0	22 49.4 -53.4	143.3	21 01.3 -53.8	143.5	21 13.0 -54.1	143.7	21 13.0 -54.1	143.7	21 13.0 -54.1	143.7	21 13.0 -54.1	143.7	16		
17	25 55.9 -52.0	142.4	25 08.2 -52.2	142.7	24 20.4 -52.6	143.0	23 32.4 -52.9	143.3	22 44.3 -53.3	143.5	21 56.0 -53.6	143.7	21 07.5 -53.9	144.0	20 18.9 -54.1	144.2	20 18.9 -54.1	144.2	20 18.9 -54.1	144.2	20 18.9 -54.1	144.2	17		
18	25 03.9 -52.0	143.0	24 16.0 -52.4	143.2	23 27.8 -52.7	143.5	22 39.5 -53.1	143.8	21 51.0 -53.3	144.0	20 02.4 -53.6	144.2	20 13.6 -53.9	144.5	19 24.8 -54.2	144.7	19 24.8 -54.2	144.7	19 24.8 -54.2	144.7	19 24.8 -54.2	144.7	18		
19	24 11.9 -52.2	143.5	23 23.6 -52.5	143.8	22 35.1 -52.8	144.0	21 46.4 -53.1	144.3	20 57.7 -53.5	144.5	20 08.8 -53.8	144.7	19 19.7 -54.0	144.9	18 30.6 -54.3	145.1	18 30.6 -54.3	145.1	18 30.6 -54.3	145.1	18 30.6 -54.3	145.1	19		
20	23 19.7 -52.3	144.1	22 31.1 -52.6	144.3	21 42.3 -53.0	144.5	20 53.3 -53.2	144.8	20 04.2 -53.5	145.0	19 15.0 -53.7	145.2	18 25.7 -54.0	145.4	17 36.3 -54.3	145.6	17 36.3 -54.3	145.6	17 36.3 -54.3	145.6	17 36.3 -54.3	145.6	20		
21	22 27.4 -52.4	144.6	21 38.5 -52.7	144.8	20 49.3 -53.0	145.0	20 00.1 -53.3	145.3	19 10.7 -53.5	145.5	18 21.3 -53.9	145.7	17 31.7 -54.2	145.8	16 42.0 -54.4	146.0	16 42.0 -54.4	146.0	16 42.0 -54.4	146.0	16 42.0 -54.4	146.0	21		
22	21 35.0 -52.4	145.1	20 45.8 -52.8	145.3	19 56.3 -53.0	145.5	19 06.8 -53.4	145.7	18 17.2 -53.7	145.9	17 27.4 -53.9	146.1	16 37.5 -54.1	146.3	15 47.6 -54.5	146.4	15 47.6 -54.5	146.4	15 47.6 -54.5	146.4	15 47.6 -54.5	146.4	22		
23	20 42.6 -52.6	145.6	19 53.0 -52.9	145.8	19 03.3 -53.2	146.0	18 13.4 -53.4	146.2	17 23.5 -53.7	146.4	16 33.5 -54.0	146.6	15 43.4 -54.3	146.7	14 53.1 -54.4	146.9	14 53.1 -54.4	146.9	14 53.1 -54.4	146.9	14 53.1 -54.4	146.9	23		
24	19 50.0 -52.7	146.1	19 00.1 -53.0	146.3	18 10.1 -53.2	146.5	17 20.0 -53.5	146.7	16 29.8 -53.8	146.9	15 39.5 -54.0	147.0	14 49.1 -54.3	147.2	13 58.7 -54.6	147.3	13 58.7 -54.6	147.3	13 58.7 -54.6	147.3	13 58.7 -54.6	147.3	24		
25	18 57.3 -52.7	146.7	18 07.1 -53.0	146.8	17 16.9 -53.3	147.0	16 26.5 -53.6	147.2	15 36.0 -53.8	147.3	14 45.5 -54.1	147.5	13 54.8 -54.3	147.6	13 04.1 -54.5	147.7	13 04.1 -54.5	147.7	13 04.1 -54.5	147.7	13 04.1 -54.5	147.7	25		
26	18 04.6 -52.8	147.2	17 14.1 -53.1	147.3	16 23.6 -53.4	147.5	15 32.9 -53.6	147.6	14 42.2 -53.9	147.7	13 51.4 -54.1	147.9	13 00.5 -54.4	148.1	12 09.6 -54.6	148.2	12 09.6 -54.6	148.2	12 09.6 -54.6	148.2	12 09.6 -54.6	148.2	26		
27	17 11.8 -52.9	147.7	16 21.0 -53.1	147.8	15 30.2 -53.4	148.0	14 39.3 -53.7	148.1	13 48.3 -53.9	148.2	12 57.3 -54.2	148.4	12 06.1 -54.4	148.5	11 15.0 -54.7	148.6	11 15.0 -54.7	148.6	11 15.0 -54.7	148.6	11 15.0 -54.7	148.6	27		
28	16 18.9 -53.0	148.2	15 27.9 -53.3	148.3	14 36.8 -53.5	148.4	13 45.6 -53.7	148.5	12 54.4 -53.9	148.6	11 30.1 -54.2	148.8	10 11.7 -54.4	148.9	9 20.3 -54.8	149.0	9 20.3 -54.8	149.0	9 20.3 -54.8	149.0	9 20.3 -54.8	149.0	28		
29	15 25.9 -53.0	148.6	14 34.6 -53.3	148.8	13 35.5 -53.7	149.5	12 32.0 -53.9	149.5	11 28.6 -54.0	149.6	10 21.7 -54.4	149.7	9 11.1 -54.6	149.8	8 00.8 -54.8	149.8	8 00.8 -54.8	149.8	8 00.8 -54.8	149.8	8 00.8 -54.8	149.8	30		
30	14 32.9 -53.1	149.1	13 41.3 -53.3	149.3	12 41.4 -53.6	149.5	11 29.0 -53.8	149.5	10 28.6 -53.9	149.6	9 20.1 -54.1	149.7	8 10.8 -54.5	149.8	7 00.8 -54.8	150.0	7 00.8 -54.8	150.0	7 00.8 -54.8</td						

36°, 324° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.								
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z									
0	39	36.4	+47.8	130.3	38	57.4	+48.4	130.9	38	17.8	+49.0	131.5	37	37.9	+49.5	132.1	36	57.4	+50.1	132.6	36	16.6	+50.6	133.2	35	35.3	+51.2	133.7	34	53.6	+51.7	134.2	0
1	40	24.2	+47.4	129.5	39	45.8	+48.1	130.1	39	06.8	+48.8	130.8	38	27.4	+49.3	131.4	37	47.5	+49.9	132.0	37	07.2	+50.4	132.5	36	26.5	+50.9	133.1	35	45.3	+51.4	133.6	1
2	41	11.6	+47.2	128.7	40	33.9	+47.7	129.4	39	55.6	+48.1	130.0	39	16.7	+49.1	130.6	38	37.4	+49.6	131.2	37	57.6	+50.2	131.8	37	17.4	+50.7	132.4	36	36.7	+51.2	133.0	2
3	41	58.8	+46.7	127.9	41	21.6	+47.5	128.6	40	44.0	+48.1	129.2	40	05.8	+48.7	129.9	39	27.0	+49.4	130.5	38	47.8	+49.8	131.1	38	08.1	+50.5	131.7	37	27.9	+51.0	132.3	3
4	42	45.5	+46.4	127.0	42	09.1	+47.1	127.7	41	32.1	+47.7	128.4	40	54.5	+48.4	129.1	40	16.4	+49.0	129.8	39	37.7	+49.7	130.4	38	58.6	+50.2	131.0	38	18.9	+50.8	131.6	4
5	43	31.9	+45.8	126.1	42	56.2	+46.7	126.9	42	19.8	+47.4	127.6	41	42.9	+48.1	128.3	41	05.4	+48.8	129.0	40	27.4	+49.3	129.7	39	48.8	+50.0	130.3	39	09.7	+50.5	131.0	5
6	44	17.8	+45.5	125.2	43	42.9	+46.2	126.0	43	07.2	+47.1	126.8	42	31.0	+47.7	127.5	41	54.2	+48.4	128.2	41	16.7	+49.1	128.9	40	38.8	+49.6	129.6	40	00.2	+50.3	130.3	6
7	45	03.3	+45.1	124.3	44	29.1	+45.9	125.1	43	54.3	+46.6	125.9	43	18.7	+47.4	126.7	42	42.6	+48.0	127.4	42	05.8	+48.7	128.2	41	28.4	+49.4	128.9	40	50.5	+50.0	129.5	7
8	45	48.4	+44.6	123.4	45	15.0	+45.5	124.2	44	40.9	+46.2	125.1	44	06.1	+47.0	125.8	43	30.6	+47.8	126.6	42	54.5	+48.4	127.4	42	17.8	+49.1	128.1	41	40.5	+49.7	128.8	8
9	46	33.0	+44.1	122.4	46	00.5	+44.9	123.3	45	27.1	+45.8	124.1	44	53.1	+46.6	125.0	44	18.4	+47.3	125.8	43	42.9	+48.1	126.6	43	06.9	+48.7	127.3	42	30.2	+49.4	128.1	9
10	47	17.1	+43.6	121.4	46	45.4	+44.5	122.3	46	12.9	+45.3	123.2	45	39.7	+46.1	124.1	45	05.7	+46.9	124.9	44	31.0	+47.7	125.7	43	55.6	+48.4	126.5	43	19.6	+49.1	127.3	10
11	48	00.7	+43.0	120.4	47	29.9	+43.9	121.3	46	58.2	+44.9	122.3	45	25.8	+45.7	123.2	45	52.6	+46.5	124.0	45	18.7	+47.3	124.9	44	44.0	+48.1	125.7	44	08.7	+48.7	126.5	11
12	48	43.7	+42.4	119.4	48	13.8	+43.4	120.3	47	43.1	+44.3	121.3	47	11.5	+45.2	122.2	46	39.1	+46.1	123.1	46	06.0	+46.8	124.0	45	32.1	+47.6	124.8	44	57.4	+48.4	125.7	12
13	49	26.1	+41.8	118.3	48	57.2	+42.8	119.3	48	27.4	+43.8	120.3	47	56.7	+44.7	121.2	47	25.2	+45.6	122.2	46	52.8	+46.5	123.1	46	19.7	+47.2	124.0	45	45.8	+48.0	124.8	13
14	50	07.9	+41.1	117.2	49	40.0	+42.2	118.2	49	11.2	+43.2	119.2	48	41.4	+44.2	120.2	48	10.8	+45.0	121.2	47	39.3	+45.9	122.1	47	06.9	+46.8	123.1	46	33.8	+47.6	124.0	14
15	50	49.0	+40.5	116.0	50	22.2	+41.6	117.1	49	54.4	+42.6	118.2	49	25.6	+43.6	119.2	48	55.8	+44.6	120.2	48	25.2	+45.5	121.2	47	53.7	+46.3	122.1	47	21.4	+47.1	123.1	15
16	51	29.5	+39.7	114.8	51	03.8	+40.8	116.0	50	37.0	+41.9	117.1	50	09.2	+42.9	118.1	49	40.4	+44.0	119.2	49	10.7	+44.9	120.2	48	40.0	+45.9	121.2	48	08.5	+46.8	122.1	16
17	52	09.2	+39.0	113.6	51	44.6	+40.2	114.8	51	18.9	+41.3	115.9	50	52.1	+42.4	117.0	50	24.4	+43.4	118.1	49	55.6	+44.4	119.2	49	25.9	+45.3	120.2	48	55.3	+46.2	121.2	17
18	52	48.2	+38.1	112.4	52	24.8	+39.3	113.6	52	00.2	+40.5	114.8	51	34.5	+41.7	115.9	51	07.8	+42.7	117.0	50	40.0	+43.8	118.1	50	11.2	+44.8	119.2	49	41.5	+45.7	120.2	18
19	53	26.3	+37.3	111.1	53	04.1	+38.6	112.3	52	40.7	+39.8	113.6	52	16.2	+40.9	114.7	51	50.5	+42.1	115.9	51	23.8	+43.1	117.0	50	56.0	+44.2	118.1	50	27.2	+45.2	119.2	19
20	54	03.6	+36.4	109.8	53	42.7	+37.7	111.1	53	20.5	+39.0	112.3	52	57.1	+40.3	113.5	52	32.6	+41.4	114.7	52	06.9	+42.6	115.9	51	40.2	+43.6	117.1	51	12.4	+44.6	118.2	20
21	54	40.0	+35.5	108.4	54	20.4	+36.8	109.7	53	59.5	+38.2	110.0	53	37.4	+39.4	112.3	53	14.0	+40.6	113.5	52	49.5	+41.4	114.8	52	23.8	+42.9	115.9	51	57.0	+44.0	117.1	21
22	55	15.5	+34.4	107.0	54	57.2	+35.9	108.4	54	37.7	+37.2	109.7	54	16.8	+38.6	110.0	53	54.6	+39.9	112.3	53	31.3	+41.0	113.6	53	06.7	+42.2	114.8	52	41.0	+43.3	116.0	22
23	55	49.9	+33.4	105.6	55	33.1	+34.9	107.0	55	14.9	+36.3	108.3	54	55.4	+37.7	109.7	54	34.5	+39.0	111.0	54	12.3	+40.3	112.3	53	48.9	+41.5	113.6	53	24.3	+42.7	114.8	23
24	56	23.3	+32.3	104.1	56	08.0	+33.8	105.5	55	51.2	+35.4	106.9	55	33.1	+36.7	108.3	55	13.5	+38.1	109.7	54	52.6	+39.5	111.0	54	30.4	+40.8	112.4	54	07.0	+41.9	113.6	24
25	56	55.6	+31.1	102.5	56	41.8	+32.8	104.0	56	26.6	+34.2	105.5	56	09.8	+35.8	106.9	55	51.6	+37.2	108.3	55	32.1	+38.5	109.7	55	11.2	+39.8	111.1	54	48.9	+41.2	112.4	25
26	57	26.7	+30.4	101.0	57	14.6	+31.5	102.5	57	00.8	+33.2	104.0	56	45.6	+34.7	105.5	56	10.6	+37.7	108.4	55	51.0	+39.1	109.8	55	30.1	+40.3	111.1	26				
27	57	56.7	+28.6	99.3	57	46.1	+30.4	100.9	57	34.0	+32.0	102.4	57	20.3	+33.6	104.0	57	05.0	+35.2	105.5	56	48.3	+36.6	106.9	56	30.1	+38.1	108.4	27				
28	58	25.3	+27.3	97.7	58	16.5	+29.1	99.3	58	06.0	+38.0	100.9	57	53.9	+32.4	102.4	57	40.2	+34.0	104.0	57	24.9	+35.6	105.5	57	08.2	+37.1	107.0	56	49.3	+38.5	108.4	28
29	58	52.6	+26.0	96.0	58	45.6	+27.7	97.6	58	36.8	+29.5	99.2	58	26.3	+31.3	100.8	58	05.5	+34.6	104.0	57	45.3	+36.0	105.5	57	28.4	+37.6	107.0	59	24.4	+31.7	99.2	34
30	59	18.6	+24.4	94.2	59	13.3	+26.3	95.9	59	06.3	+28.1	97.5	59	27.5	+28.6	97.5	59	18.8	+30.4	99.2	59	40.4	+32.1	100.8	58	56.3	+33.8	102.4	58	42.5	+35.5	104.1	30
31	59	43.0	+23.0	92.4	59	39.6	+24.9	94.1	59	34.4	+26.8	95.8	59	25.5	+27.6	97.0	59	40.5	+29.8	99.2	59	30.1	+32.5	100.8	59	18.0	+34.2	102.5	32				
32	60	06.0	+21.4	90.6	60	04.5	+23.3	92.3	60	01.2	+25.3	94.0	60	59.1	+27.1	95.7	60	19.2	+29.0	97.5	60	11.1	+25.3	99.1	61	56.1	+27.3	93.8	37				
33	60	27.4	+19.7	88.7																													

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 36°, 324°

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.					
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
0	39 36.4 -48.1	130.3	38 57.4 -48.7	130.9	38 17.8 -49.2	131.5	37 37.9 -49.9	132.1	36 57.4 -50.3	132.6	36 16.6 -50.9	133.2	35 35.3 -51.3	133.7	34 53.6 -51.8	134.2	30	32.9 -52.7	137.2	35	35.3 -51.3	133.7	34 01.8 -52.0	134.8	0					
1	38 48.3 -48.4	131.0	38 08.7 -49.0	131.6	37 28.6 -49.6	132.2	36 48.0 -50.0	132.8	36 07.1 -50.6	133.3	35 25.7 -51.1	133.8	34 44.0 -51.6	134.3	33 09.8 -52.1	135.4	29	40.2 -52.7	137.7	34	01.8 -52.0	134.8	34 01.8 -52.0	134.8	1					
2	37 59.9 -48.7	131.8	37 19.7 -49.3	132.4	36 39.0 -49.7	132.9	35 58.0 -50.3	133.5	35 16.5 -50.8	134.0	34 34.6 -51.2	134.5	33 52.4 -51.7	135.0	33 09.8 -52.1	135.4	27	32.1 -52.5	137.9	28	47.5 -52.9	138.3	28 39.6 -52.6	138.4	2					
3	37 11.2 -48.9	132.5	36 30.4 -49.4	133.1	35 49.3 -50.1	133.6	35 07.7 -50.6	134.1	34 25.7 -51.0	134.6	33 43.4 -51.5	135.1	33 00.7 -51.3	135.6	32 17.7 -52.4	136.0	31	25.3 -52.4	136.6	31 25.3 -52.4	136.6	3 32.0 -52.1	136.2	3						
4	36 22.3 -49.2	133.3	35 41.0 -49.8	133.8	34 59.2 -50.2	134.3	34 17.1 -50.7	134.8	33 34.7 -51.2	135.3	32 51.9 -51.6	135.7	32 08.8 -52.1	136.2	31 25.3 -52.4	136.6	31 25.3 -52.4	136.6	31 25.3 -52.4	136.6	31 25.3 -52.4	136.6	4							
5	35 33.1 -49.5	134.0	34 51.2 -49.9	134.5	34 09.0 -50.4	135.0	33 26.4 -50.9	135.4	32 43.5 -51.4	135.9	32 00.3 -51.8	136.3	31 16.7 -52.2	136.8	30 32.9 -52.7	137.2	30	32.9 -52.7	137.2	30	32.9 -52.7	137.2	30	32.9 -52.7	137.2	5				
6	34 43.6 -49.7	134.7	34 01.3 -50.2	135.1	33 18.6 -50.7	135.6	32 35.5 -51.1	136.1	31 52.1 -51.5	136.5	31 08.5 -52.0	136.9	30 24.5 -52.4	137.3	29	40.2 -52.7	137.7	29	40.2 -52.7	137.7	29	40.2 -52.7	137.7	6						
7	33 53.9 -49.9	135.3	33 11.1 -50.4	135.8	32 27.9 -50.8	136.3	31 44.4 -51.3	136.7	31 00.6 -51.7	137.1	30 16.5 -52.1	137.5	29 32.1 -52.5	137.9	28	47.5 -52.9	138.3	28 39.6 -52.6	138.4	27	54.6 -53.0	138.8	27 54.6 -53.0	138.8	8					
8	33 04.0 -50.1	136.0	32 20.7 -50.5	136.5	31 37.1 -51.0	136.9	30 53.1 -51.4	137.3	30 08.9 -51.9	137.7	29 24.4 -52.3	138.1	28 39.6 -52.6	138.4	27	54.6 -53.0	138.8	27 54.6 -53.0	138.8	27 54.6 -53.0	138.8	9								
9	32 13.9 -50.3	136.7	31 30.2 -50.8	137.1	30 46.1 -51.2	137.5	30 01.7 -51.6	137.9	29 17.0 -52.0	138.3	28 32.1 -52.4	138.6	27 47.0 -52.8	139.0	27	01.6 -53.1	139.3	27 01.6 -53.1	139.3	27 01.6 -53.1	139.3	9								
10	31 23.6 -50.5	137.3	30 39.4 -50.9	137.7	29 54.9 -51.4	138.1	29 10.1 -51.8	138.5	28 25.0 -52.1	138.8	27 39.7 -52.5	139.2	26 54.2 -52.8	139.5	26	08.5 -53.3	139.8	26	08.5 -53.3	139.8	26	08.5 -53.3	139.8	10						
11	30 33.1 -50.6	137.9	29 48.5 -51.1	138.3	29 03.5 -51.5	138.7	28 18.3 -51.9	139.1	27 32.9 -52.3	139.4	26 47.2 -52.6	139.7	26 01.3 -53.0	140.1	25	15.2 -53.3	140.4	25	15.2 -53.3	140.4	25	15.2 -53.3	140.4	11						
12	29 42.5 -50.9	138.6	28 57.4 -51.3	138.9	28 12.0 -51.6	139.3	27 26.4 -52.0	139.6	26 40.6 -52.4	140.0	25 54.6 -52.8	140.3	25 08.3 -53.1	140.6	24	21.9 -53.5	140.9	24	21.9 -53.5	140.9	24	21.9 -53.5	140.9	12						
13	28 51.6 -51.0	139.2	28 06.1 -51.4	139.5	27 20.4 -51.8	139.9	26 34.4 -52.2	140.2	25 48.2 -52.5	140.5	25 01.8 -52.9	140.8	24 15.2 -53.2	141.1	23	28.4 -53.5	141.4	23	28.4 -53.5	141.4	23	28.4 -53.5	141.4	13						
14	28 00.6 -51.1	139.8	27 14.7 -51.5	140.1	26 28.6 -51.9	140.4	25 42.2 -52.2	140.7	24 55.7 -52.6	141.0	24 08.9 -52.9	141.3	23 22.0 -53.3	141.6	22	34.9 -53.6	141.9	22	34.9 -53.6	141.9	22	34.9 -53.6	141.9	14						
15	27 09.5 -51.3	140.3	26 23.2 -51.7	140.7	25 36.7 -52.1	141.0	24 50.0 -52.4	141.3	23 03.1 -52.8	141.6	23 16.0 -53.1	141.8	22 28.7 -53.4	142.1	21	41.3 -53.7	142.3	21	41.3 -53.7	142.3	21	41.3 -53.7	142.3	15						
16	26 18.2 -51.5	140.9	25 31.5 -51.8	141.2	24 44.6 -52.1	141.5	23 57.6 -52.6	141.8	22 10.3 -52.8	142.1	22 22.9 -53.2	142.3	21 35.3 -53.5	142.6	20	47.6 -53.8	142.8	20	47.6 -53.8	142.8	20	47.6 -53.8	142.8	16						
17	25 26.7 -51.5	141.5	24 39.7 -51.9	141.8	23 52.5 -52.3	142.1	23 05.0 -52.6	142.3	22 17.5 -53.0	142.6	21 29.7 -53.2	142.8	20 41.8 -53.5	143.1	19	53.8 -53.8	143.3	19	53.8 -53.8	143.3	19	53.8 -53.8	143.3	17						
18	24 35.2 -51.7	142.1	23 47.8 -52.1	142.3	23 00.2 -52.4	142.6	22 12.4 -52.7	142.9	21 24.5 -53.0	143.1	20 36.5 -53.4	143.3	19 48.3 -53.7	143.5	19	00.0 -54.0	143.8	19	00.0 -54.0	143.8	19	00.0 -54.0	143.8	18						
19	23 43.5 -51.8	142.6	22 55.7 -52.1	142.9	22 07.8 -52.5	143.1	21 19.7 -52.8	143.4	20 31.5 -53.1	143.6	19 43.1 -53.4	143.8	18 54.6 -53.7	144.0	18	06.0 -54.0	144.2	18	06.0 -54.0	144.2	18	06.0 -54.0	144.2	19						
20	22 51.7 -52.0	143.2	22 03.6 -52.3	143.4	21 15.3 -52.6	143.7	20 26.9 -52.9	143.9	19 38.4 -53.2	144.1	18 49.7 -53.5	144.3	18 00.9 -53.7	144.5	17	12.0 -54.0	144.7	17	12.0 -54.0	144.7	17	12.0 -54.0	144.7	20						
21	21 59.7 -52.0	143.7	21 11.3 -52.3	143.9	20 22.7 -52.6	144.2	19 34.0 -53.0	144.4	18 45.2 -53.3	144.6	17 56.2 -53.5	144.8	17 07.2 -53.9	145.0	16	18.0 -54.1	145.1	16	18.0 -54.1	145.1	16	18.0 -54.1	145.1	21						
22	21 07.7 -52.1	144.2	20 19.0 -52.5	144.5	19 30.1 -52.8	144.7	18 41.0 -53.0	144.9	17 51.9 -53.3	145.1	17 02.7 -53.7	145.2	16 13.3 -53.9	145.4	15	23.9 -54.2	145.6	15	23.9 -54.2	145.6	15	23.9 -54.2	145.6	22						
23	20 15.6 -52.2	144.8	19 26.5 -52.5	145.0	18 37.3 -52.8	145.2	17 48.0 -53.1	145.4	16 58.6 -53.4	145.5	16 09.0 -53.6	145.7	15 19.4 -53.9	145.9	14	29.7 -54.2	146.0	14	29.7 -54.2	146.0	14	29.7 -54.2	146.0	23						
24	19 23.4 -52.4	145.3	18 34.0 -52.6	145.5	17 44.5 -52.9	145.7	16 54.9 -53.2	145.9	16 05.2 -53.5	146.0	15 15.4 -53.8	146.2	14 25.5 -54.0	146.3	13	35.5 -54.3	146.5	13	35.5 -54.3	146.5	13	35.5 -54.3	146.5	24						
25	18 31.0 -52.3	145.8	17 41.4 -52.7	146.0	16 51.6 -53.0	146.2	16 01.7 -53.3	146.3	15 11.7 -53.5	146.5	14 21.6 -53.8	146.6	13 31.5 -54.1	146.8	12	41.2 -54.3	146.9	12	41.2 -54.3	146.9	12	41.2 -54.3	146.9	25						
26	17 38.7 -52.5	146.3	16 48.7 -52.8	146.5	15 08.4 -53.1	146.7	14 18.2 -53.6	146.8	13 27.8 -53.3	147.0	12 37.4 -53.8	147.1	12 37.4 -53.8	147.2	11	46.9 -54.3	147.3	11	46.9 -54.3	147.3	11	46.9 -54.3	147.3	26						
27	16 46.2 -52.6	146.8	15 55.9 -52.8	147.0	15 05.5 -53.1	147.2	14 15.1 -53.4	147.3	13 24.6 -53.7	147.4	12 34.0 -53.9	147.5	11 43.3 -54.1	147.7	10	52.6 -54.4	147.8	10	52.6 -54.4	147.8	10	52.6 -54.4	147.8	27						
28	15 53.6 -52.6	147.3	15 03.1 -52.9	147.5	14 12.4 -53.1	147.6	13 21.7 -53.4	147.8	12 30.9 -53.6	147.9	11 40.1 -53.9	148.0	10 49.2 -54.2	148.1	9	58.2 -54.4	148.2	9	58.2 -54.4	148.2	9	58.2 -54.4	148.2	28						
29	15 01.0 -53.1	152.6	5 18.7 -53.3	150.4	0 0.2 +4.4	+53.6	25.0	0 0.5 +5.6	+53.8	25.0	0 0.5 +5.6	+53.8	25.0	0 0.5 +5.6	+53.8	25.0	0 0.5 +5.6	+53.8	25.0	0 0.5 +5.6	+53.8	25.0	0 0.5 +5.6	+53.8	29					
30	0 53.1 -53.2	155.4	0 0.1 +4.4	+53.4	24.6	0 1.4 +5.8	+53.4	24.6	2 45.2 +5.9	+53.4	24.6	3 39.7 +5.4	+51.1	24.6	4 34.2 +5.4	+54.4	24.6	5 28.8 +5.4	+54.5	24.7	6 23.3 +5.4	+54.5	24.7	7 17.8 +54.4	+54.5	24.7				
31	0 0.0 +5.1	24.1	0 54.8 +53.4	24.1	1 49.6 +53.6	24.1	2 44.4 +53.7	24.1	3 39.1 +53.9	24.2	4 33.8 +54.2	24.2	5 28.6 +54.3	24.2	6 23.3 +54.5	24.3	7 17.8 +54.4	24.3	8 12.2 +54.5	24.4	9 0.6 +54.4	24.0	10	50.6 +54.6	26.8	10	50.6 +54.6	26.8	10	50

37°, 323° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
0	39 00.1 +47.3	129.2	38 21.8 +48.1	129.9	37 43.1 +48.7	130.5	37 04.0 +49.2	131.0	36 24.4 +49.7	131.6	35 44.3 +50.3	132.1	35 03.8 +50.9	132.7	34 23.0 +51.3	133.2	30	0	0	0	0	0	0	0	
1	39 47.4 +47.1	128.5	39 09.9 +47.6	129.1	38 31.8 +48.3	129.7	37 53.2 +48.9	130.3	37 14.1 +49.5	130.9	36 34.6 +50.1	131.5	35 54.7 +50.6	132.0	35 14.3 +51.1	132.5	1	0	0	0	0	0	0	0	
2	40 34.5 +46.7	127.6	39 57.5 +47.4	128.3	39 20.1 +48.0	129.0	38 42.1 +48.7	129.6	38 03.6 +49.3	130.2	37 24.7 +49.8	130.8	36 45.3 +50.3	131.4	36 05.4 +50.9	131.9	2	0	0	0	0	0	0	0	
3	41 21.2 +46.3	126.8	40 44.9 +47.0	127.5	40 08.1 +47.7	128.2	39 30.8 +48.3	128.8	38 52.9 +48.9	129.5	38 14.5 +49.6	130.1	37 35.6 +50.2	130.7	36 56.3 +50.7	131.2	3	0	0	0	0	0	0	0	
4	42 07.5 +45.9	126.0	41 31.9 +46.7	126.7	40 55.8 +47.4	127.4	40 19.1 +48.0	128.1	39 41.8 +48.7	128.7	39 04.1 +49.2	129.4	38 25.8 +49.8	130.0	37 47.0 +50.4	130.6	4	0	0	0	0	0	0	0	
5	42 53.4 +45.4	125.1	42 18.6 +46.3	125.8	41 43.2 +47.0	126.6	41 07.1 +47.7	127.3	40 30.5 +48.4	128.0	39 53.3 +49.0	128.6	39 15.6 +49.6	129.3	38 37.4 +50.2	129.9	5	0	0	0	0	0	0	0	
6	43 38.9 +45.1	124.2	43 04.9 +45.9	125.0	42 30.2 +46.6	125.7	41 54.8 +47.4	126.5	41 18.9 +48.0	127.2	40 42.3 +48.7	127.9	40 05.2 +49.4	128.5	39 27.6 +49.9	129.2	6	0	0	0	0	0	0	0	
7	44 24.0 +44.7	123.3	43 50.8 +45.4	124.1	43 16.8 +46.2	124.9	42 42.2 +47.0	125.6	42 06.9 +47.7	126.4	41 31.0 +48.4	127.1	40 54.6 +49.0	127.8	40 17.5 +49.7	128.5	7	0	0	0	0	0	0	0	
8	45 08.7 +44.2	122.3	44 36.2 +45.0	123.2	44 03.0 +45.9	124.0	43 29.2 +46.6	124.8	42 54.6 +47.3	125.5	42 19.4 +48.1	126.3	41 43.6 +48.7	127.0	41 07.2 +49.3	127.7	8	0	0	0	0	0	0	0	
9	45 52.9 +43.6	121.4	45 21.2 +44.6	122.2	44 48.9 +45.3	123.1	44 15.8 +46.1	123.9	43 41.9 +47.0	124.7	43 07.5 +47.6	125.5	42 32.3 +48.4	126.2	41 56.5 +49.1	127.0	9	0	0	0	0	0	0	0	
10	46 36.5 +43.2	120.4	46 05.8 +44.0	121.3	45 34.2 +45.0	122.2	45 01.9 +45.8	123.0	44 28.9 +46.5	123.8	43 55.1 +47.3	124.6	43 20.7 +48.0	125.4	42 45.6 +48.7	126.2	10	0	0	0	0	0	0	0	
11	47 19.7 +42.6	119.4	46 49.8 +43.6	120.3	46 19.2 +44.4	121.2	45 47.7 +45.3	122.1	45 15.4 +46.1	122.9	44 42.4 +46.3	123.8	44 08.7 +47.7	124.6	43 34.3 +48.4	125.4	11	0	0	0	0	0	0	0	
12	48 02.3 +42.0	118.3	47 33.4 +42.9	119.3	47 03.6 +43.9	120.2	46 33.0 +44.8	121.1	46 01.5 +45.7	122.0	45 29.3 +46.5	122.9	44 56.4 +47.3	123.7	44 22.7 +48.0	124.6	12	0	0	0	0	0	0	0	
13	48 44.3 +41.3	117.2	48 16.3 +42.4	118.2	47 47.5 +43.4	119.2	47 17.8 +44.3	120.2	46 47.2 +45.2	121.1	46 15.8 +46.1	122.0	45 43.7 +46.8	122.9	45 10.7 +47.7	123.7	13	0	0	0	0	0	0	0	
14	49 25.6 +40.8	116.1	48 58.7 +41.8	117.2	48 30.9 +42.8	118.2	48 02.1 +43.7	119.2	47 32.4 +44.7	120.1	47 01.9 +45.5	121.0	46 30.5 +46.4	122.0	45 58.4 +47.2	122.8	14	0	0	0	0	0	0	0	
15	50 06.4 +40.0	115.0	49 40.5 +41.2	116.1	49 13.7 +42.1	117.1	48 45.8 +43.2	118.1	48 17.1 +44.1	119.1	47 47.4 +45.1	120.1	47 16.9 +46.0	121.0	46 45.6 +46.8	121.9	15	0	0	0	0	0	0	0	
16	50 46.4 +39.3	113.8	50 21.7 +40.4	114.9	49 55.8 +41.6	116.0	49 29.0 +42.6	117.1	49 01.2 +43.6	118.1	48 32.5 +44.6	119.1	48 02.9 +45.5	120.1	47 32.4 +46.3	121.0	16	0	0	0	0	0	0	0	
17	51 25.7 +38.6	112.6	51 02.1 +39.8	113.8	50 37.4 +40.9	114.9	50 11.6 +42.0	116.0	49 44.8 +43.0	117.0	49 17.1 +44.0	118.1	48 48.4 +44.9	119.1	48 18.7 +45.9	120.1	17	0	0	0	0	0	0	0	
18	52 04.3 +37.8	111.4	51 41.9 +38.9	112.6	51 18.3 +40.1	113.7	50 53.6 +41.3	114.9	50 27.8 +42.4	116.0	50 01.1 +43.4	117.0	49 33.3 +44.4	118.1	49 04.6 +45.4	119.1	18	0	0	0	0	0	0	0	
19	52 42.1 +36.3	110.1	52 20.8 +38.2	111.3	51 58.4 +39.4	112.5	51 34.9 +40.6	113.7	51 10.2 +41.7	114.8	50 44.5 +42.6	115.9	50 17.7 +43.9	117.0	49 50.0 +44.8	118.1	19	0	0	0	0	0	0	0	
20	53 19.0 +36.0	108.8	52 59.0 +37.4	110.1	52 37.8 +38.7	111.3	52 15.5 +39.8	112.5	51 51.9 +41.1	113.7	51 27.3 +42.1	114.8	51 01.6 +43.2	116.0	50 34.8 +44.2	117.1	20	0	0	0	0	0	0	0	
21	53 55.0 +35.1	107.5	53 36.4 +36.5	108.7	53 16.5 +37.8	110.0	52 55.3 +39.1	111.3	52 33.0 +40.2	112.5	52 09.4 +41.5	113.7	51 44.8 +42.5	114.8	51 19.0 +43.7	116.0	21	0	0	0	0	0	0	0	
22	54 30.1 +34.2	106.1	54 12.9 +35.5	107.4	53 54.3 +36.9	108.7	53 34.4 +38.2	110.0	53 13.2 +39.5	111.3	52 50.9 +40.7	112.5	52 27.3 +41.9	113.7	52 02.7 +43.0	114.9	22	0	0	0	0	0	0	0	
23	55 04.3 +33.1	104.6	54 48.4 +34.6	106.0	54 31.2 +36.0	107.4	54 12.6 +37.3	108.7	53 52.7 +38.7	110.0	53 31.6 +39.9	111.3	53 09.2 +41.2	112.5	52 45.7 +42.3	113.7	23	0	0	0	0	0	0	0	
24	55 37.4 +32.0	103.2	55 23.0 +33.5	104.6	55 07.2 +35.0	106.0	54 49.9 +36.5	107.3	54 31.4 +37.8	108.7	54 11.5 +39.1	110.0	53 50.4 +40.3	111.3	52 28.0 +41.6	112.6	24	0	0	0	0	0	0	0	
25	56 09.4 +30.9	101.7	55 56.5 +32.5	103.1	55 42.2 +33.9	104.5	55 26.4 +35.4	106.0	55 09.2 +36.9	107.3	54 50.6 +38.3	108.7	54 30.7 +39.6	110.0	54 09.6 +40.8	111.3	25	0	0	0	0	0	0	0	
26	56 40.3 +29.7	100.1	56 29.0 +31.3	101.6	56 16.1 +32.9	103.1	56 01.8 +34.5	104.5	55 46.1 +35.9	105.9	55 28.9 +37.3	107.3	55 10.3 +38.7	108.7	54 50.4 +40.0	110.1	26	0	0	0	0	0	0	0	
27	57 10.0 +28.4	98.5	57 00.3 +30.1	100.0	56 49.0 +31.8	101.6	56 36.3 +33.3	103.0	56 22.0 +34.8	104.5	56 06.2 +36.4	106.0	55 49.0 +37.8	107.4	55 30.4 +39.1	108.8	27	0	0	0	0	0	0	0	
28	57 38.4 +27.2	96.9	57 30.4 +28.9	98.4	57 20.8 +30.6	100.0	57 09.6 +32.2	101.5	56 56.8 +33.8	103.0	56 42.6 +35.3	104.5	56 26.8 +36.8	106.0	56 09.5 +38.3	107.4	28	0	0	0	0	0	0	0	
29	58 05.6 +25.8	95.2	57 59.3 +27.6	96.8	57 51.4 +29.3	98.9	57 41.8 +31.0	100.0	57 30.6 +32.7	101.5	57 17.9 +34.2	103.0	57 03.6 +35.8	104.5	56 47.8 +37.2	106.0	29	0	0	0	0	0	0	0	
30	58 31.4 +24.4	93.5	58 26.9 +26.2	95.1	58 20.7 +28.0	96.7	58 12.8 +29.8	98.3	58 03.3 +31.4	99.9	57 52.1 +33.1	101.5	57 39.4 +34.7	103.0	57 25.0 +36.3	104.6	30	0	0	0	0	0	0	0	
31	58 55.8 +22.9	91.7	58 53.1 +24.8	93.4	58 48.7 +26.6	95.0	58 42.6 +28.4	96.7	58 34.7 +30.2	98.3	58 25.2 +31.0	99.9	58 14.1 +33.5	101.5	58 01.3 +35.2	103.1	31	0	0	0	0	0	0	0	
32	59 18.7 +21.4	89.9	59 17.9 +23.3	91.6	59 15.3 +25.2	93.3	59 11.0 +27.0	95.0	59 04.9 +28.9	96.6	58 57.1 +30.7	98.3	58 47.6 +32.4	99.9	58 36.5 +34.0	101.5	32	0	0	0	0	0	0	0	
33	59 40.1 +19.8	88.1	59 41.2 +21.8	89.8	59 40.5 +23.7	91.5	59 38.0 +25.7	93.2	59 33.8 +27.5	94.9	59 27.8 +29.3	96.6	59 20.0 +31.1	98.3	59 10.5 +32.8	99.9	33	0	0	0	0	0	0	0	
34	59 59.9 +18.2	86.2	60 03.0 +20.2	87.9	60 04.2 +22.2	89.7	60 03.7 +23.8	90.7	60 13.8 +6.1	91.4	60 01.3 +26.0	93.2	59 57.1 +27.9	94.9	59 41.1 +29.7	96.6	34	0	0	0	0	0	0	0	
35	60 18.1 +16.5	84.3	60 23.2 +18.5	86.0	60 26.4 +20.5	87.8	60 2																		

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 37° , 323°

Dec.	38°			39°			40°			41°			42°			43°			44°			Dec.										
	H	c	d	Z	H	c	d	Z	H	c	d	Z	H	c	d	Z	H	c	d	Z	H	c	d	Z								
0	39	00.1	-47.7	129.2	38	21.8	-48.3	129.9	37	43.1	-48.8	130.5	37	04.0	-49.5	131.0	36	24.4	-50.0	131.6	35	44.3	-50.5	132.1	35	03.8	-51.0	132.7	34	23.0	-51.5	133.2
1	38	12.4	-48.0	130.0	37	33.5	-48.5	130.6	36	54.3	-49.2	131.2	36	14.5	-49.7	131.7	35	34.4	-50.3	132.3	34	53.8	-50.8	132.8	34	12.8	-51.2	133.3	33	31.5	-51.7	133.8
2	37	24.4	-48.3	130.8	36	45.0	-48.9	131.4	36	05.1	-49.4	131.9	35	24.8	-49.9	132.4	33	44.1	-50.4	133.0	34	03.0	-50.9	133.5	33	21.6	-51.4	133.9	32	39.8	-51.9	134.4
3	36	36.1	-48.5	131.5	35	56.1	-49.1	132.1	35	15.7	-49.6	132.6	34	34.9	-50.2	133.1	33	53.7	-50.7	133.6	33	12.1	-51.1	134.1	32	30.2	-51.6	134.6	31	47.9	-52.0	135.0
4	35	47.6	-48.8	132.3	35	07.0	-49.3	132.8	34	26.1	-49.9	133.3	33	44.7	-50.3	133.8	33	03.0	-50.8	134.3	32	21.0	-51.3	134.7	31	38.6	-51.7	135.2	30	55.9	-52.2	135.6
5	34	58.8	-49.1	133.0	34	17.7	-49.6	133.5	33	36.2	-50.1	134.0	32	54.4	-50.6	134.4	32	12.2	-51.0	134.9	31	29.7	-51.5	135.3	30	46.9	-51.9	135.7	30	03.7	-52.3	136.2
6	34	09.7	-49.3	133.7	33	28.1	-49.8	134.2	32	46.1	-50.3	134.6	32	03.8	-50.7	135.1	31	21.2	-51.2	135.5	30	38.2	-51.6	135.9	29	55.0	-52.1	136.3	29	11.4	-52.4	136.7
7	33	20.4	-49.5	134.4	32	38.3	-50.0	134.8	31	55.8	-50.4	135.3	31	13.1	-51.0	135.7	30	30.0	-51.4	136.1	29	46.6	-51.8	136.5	29	02.9	-52.2	136.9	28	19.0	-52.6	137.3
8	32	30.9	-49.7	135.0	31	48.3	-50.2	135.5	31	05.4	-50.7	135.9	30	22.1	-51.1	136.3	29	38.6	-51.5	136.7	28	54.8	-51.9	137.1	28	10.7	-52.3	137.5	27	26.4	-52.7	137.8
9	31	41.2	-49.9	135.7	30	58.1	-50.4	136.1	30	14.7	-50.8	136.5	29	31.0	-51.2	136.9	28	47.1	-51.7	137.3	27	28.9	-52.1	137.7	27	18.4	-52.9	138.4	26	33.7	-52.9	138.4
10	30	51.3	-50.1	136.3	30	07.7	-50.5	136.7	29	23.9	-51.0	137.1	28	39.8	-51.4	137.5	27	55.4	-51.8	137.9	27	10.8	-52.2	138.2	26	25.9	-52.6	138.6	25	40.8	-52.9	138.9
11	30	01.2	-50.3	137.0	29	17.2	-50.8	137.4	28	32.9	-51.1	137.7	27	48.4	-51.6	138.1	27	03.6	-52.0	138.4	26	18.6	-52.4	138.8	25	33.3	-52.7	139.1	24	47.9	-53.1	139.4
12	29	10.9	-50.5	137.6	28	26.4	-50.8	138.0	27	41.8	-51.3	138.3	26	56.8	-51.7	138.7	26	11.6	-52.0	139.0	25	26.2	-52.4	139.3	24	40.6	-52.8	139.6	23	54.8	-53.1	139.9
13	28	20.4	-50.6	138.2	27	35.6	-51.1	138.6	26	50.5	-51.5	138.9	26	05.1	-51.8	139.2	25	19.6	-52.2	139.6	24	33.8	-52.6	139.9	23	47.8	-52.9	140.1	23	01.7	-53.3	140.4
14	27	29.8	-50.8	138.8	26	44.5	-51.2	139.2	25	59.0	-51.6	139.5	25	13.3	-52.0	139.8	24	27.4	-52.4	140.1	23	41.2	-52.6	140.4	22	54.9	-53.0	140.7	22	08.4	-53.3	140.9
15	26	39.0	-50.9	139.4	25	53.3	-51.3	139.7	25	07.4	-51.7	140.1	24	21.3	-52.0	140.3	23	35.0	-52.4	140.6	22	48.6	-52.8	140.9	22	01.9	-53.1	141.2	21	15.1	-53.4	141.4
16	25	48.1	-51.1	140.0	25	02.0	-51.4	140.3	24	15.7	-51.8	140.6	23	29.3	-52.2	140.9	22	42.6	-52.5	141.2	21	55.8	-52.9	141.4	21	08.8	-53.2	141.7	20	21.7	-53.5	141.9
17	24	57.0	-51.2	140.6	24	10.6	-51.6	140.9	23	23.9	-51.9	141.2	22	37.1	-52.3	141.4	21	50.1	-52.6	141.7	21	02.9	-52.9	141.9	20	15.6	-53.2	142.2	19	28.2	-53.6	142.4
18	24	05.8	-51.3	141.2	23	19.0	-51.7	141.4	22	32.0	-52.1	141.7	21	44.8	-52.4	142.0	20	57.5	-52.7	142.2	20	10.0	-53.0	142.4	19	22.4	-53.4	142.6	18	34.6	-53.6	142.9
19	23	14.5	-51.5	141.7	22	27.3	-51.8	142.0	21	39.9	-52.1	142.2	20	52.4	-52.5	142.5	20	04.8	-52.8	142.7	19	17.0	-53.2	142.9	18	29.0	-53.4	143.1	17	41.0	-53.8	143.3
20	22	23.0	-51.5	142.3	21	35.5	-51.9	142.5	20	47.8	-52.3	142.8	19	59.9	-52.5	143.0	19	12.0	-52.9	143.2	18	23.8	-53.2	143.4	17	35.6	-53.5	143.6	16	47.2	-53.7	143.8
21	21	31.5	-51.7	142.8	20	43.6	-52.0	143.1	19	55.5	-52.3	143.3	19	07.4	-52.7	143.5	18	19.1	-53.0	143.7	17	30.6	-53.2	143.9	16	42.1	-53.5	144.1	15	53.5	-53.9	144.3
22	20	39.8	-51.8	143.4	19	51.6	-52.1	143.6	19	03.2	-52.4	143.8	18	14.7	-52.7	144.0	17	26.1	-53.0	144.2	16	37.4	-53.3	144.4	15	48.6	-53.7	144.6	14	59.6	-53.9	144.7
23	19	48.0	-51.8	143.9	18	59.5	-52.2	144.1	18	10.8	-52.5	144.3	17	22.0	-52.8	144.5	16	33.1	-53.1	144.7	15	44.1	-53.4	144.9	14	54.9	-53.6	145.0	14	05.7	-53.9	145.2
24	18	56.2	-52.2	144.5	18	07.3	-52.3	144.7	17	18.3	-52.6	144.8	16	29.2	-52.9	145.0	15	40.0	-53.2	145.2	14	50.7	-53.5	145.3	13	11.8	-54.0	145.6	12	21.5	-54.2	145.8
25	18	04.2	-52.0	145.0	17	15.0	-52.3	145.2	16	25.7	-52.6	145.3	15	36.3	-52.9	145.5	14	46.8	-53.2	145.7	13	57.2	-53.5	145.8	13	07.5	-53.7	145.9	12	17.8	-54.0	146.1
26	17	12.2	-52.2	145.5	16	22.7	-52.5	145.7	15	33.1	-52.8	145.8	14	43.4	-53.0	146.0	13	53.6	-53.3	146.1	13	03.7	-53.5	146.3	12	13.8	-53.8	146.4	11	23.8	-54.1	146.5
27	16	20.0	-52.2	146.0	15	30.2	-52.5	146.2	14	40.3	-52.7	146.3	13	50.4	-53.1	146.5	13	00.3	-53.3	146.6	12	10.2	-53.6	146.7	11	20.0	-53.9	146.8	10	29.7	-54.1	147.0
28	15	27.8	-52.2	146.5	14	37.7	-52.5	146.7	13	47.6	-52.9	146.8	12	57.3	-53.1	147.0	12	07.0	-53.4	147.1	10	26.1	-53.9	147.3	9	35.6	-54.1	147.4	8	41.5	-54.2	147.8
29	14	35.6	-52.4	147.1	13	45.2	-52.6	147.2	12	54.7	-52.9	147.3	11	04.2	-53.2	147.4	11	13.6	-53.4	147.5	10	22.9	-53.6	147.6	9	32.2	-53.9	147.7	8	41.5	-54.2	147.8
30	13	43.2	-52.6	147.6	12	28.7	-52.8	150.1	7	36.7	-53.1	150.2	6	44.6	-53.3	150.3	5	52.5	-53.6	150.3	4	00.8	-54.1	150.4	3	16.1	-54.3	150.4	3	30.8	-54.1	150.5
31	8	28.1	-52.7	150.5	7	35.9	-53.0	150.6	6	43.6	-53.2	150.6	5	51.3	-53.4	150.7	4	58.9	-53.6	150.7	4	06.6	-53.9	150.8	3	14.2	-54.1	150.8	2	21.8	-54.3	150.8
32	7	35.4	-52.7	151.0	6	42.9	-52.9	151.1	5	50.4	-53.2	151.1	4	47.9	-53.4	151.2	3	12.7	-53.8	151.2	2	20.1	-54.0	151.2	1	27.5	-54.3	151.3	1	32.2	-54.3	151.7
33	6	42.7	-52.7	151.5	5	50.0	-53.0	151.5	4	57.2	-53.2	151.6	3	04.5	-53.5	151.6	2	11.7	-53.7	151.6	1	26.1	-54.1	151.7	0	33.2	-54.3	151.7				
34	5	50.0	-52.8	152.0	4	57.0	-53.0	152.0	3	22.1	-53.3	152.7	2	11.6	-53.4	152.7	1	22.7	+53.9	153.0	0	30.7	+53.7	153.0	0	21.1	+54.3	153.9				
35	4	19.6	+52.8	247.7	1	14.1	+53.0	247.7	2	08.6	+53.2	247.7	3	03.1	+53.4	247.7	4	57.6	+53.6	248.8	5	45.9	+53.8	248.4	6	40.5	+54.0	248.4	7	35.1	+54.2	248.6
36	3	12.4	+52.8	248.2	2	07.1	+53.0	248.2	3	01.8	+53.2	248.3	4	49.9	+53.4	248.3	4	51.2	+53.6	248.3	5	45.9	+53.8	248.4	6	40.5	+54.0	248.4	7	35.1	+54.2	248.6
37	2	05.2	+52.8	248.8	3	00.1	+53.0	248.8	2	55.0	+53.2	248.8	1	24.8	+53.4	248.8	2	25.5	+53.6	248.8	3	25.5	+53.7	248.9	2	34.5	+54.0	248.9	3	28.5	+54.3	249.0
38	1	44.8	+52.5	18.5	12	41.7	+52.7	18.5	13	38.6	+52.8	18.6	14	35.5	+52.9	18.7	15	32.3	+53.1	18.8	16	29.1	+53.3	18.9	17	25.8	+53.5	19.0	18	22.6	+53.6	19.1</td

S. Lat. { L.H.A. greater than 180° Zn= 180° -Z
 L.H.A. less than 180°Zn= 180° +Z

LATITUDE SAME NAME AS DECLINATION

L.H.A. 143° , 217°

38°, 322° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	38°			39°			40°			41°			42°			43°			44°			45°			Dec.								
Dec.	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.								
0	38	23.2	+46.9	128.2	37	45.8	+47.6	128.9	37	07.9	+48.2	129.4	36	29.6	+48.8	130.0	35	50.7	+49.5	130.6	35	11.5	+50.0	131.1	34	31.8	+50.5	131.6	33	51.8	+51.0	132.1	0
1	39	10.1	+46.7	127.4	38	33.4	+47.3	128.1	37	56.1	+48.0	128.7	37	18.4	+48.5	129.3	36	40.2	+49.1	129.9	36	01.5	+49.7	130.4	35	22.3	+50.3	131.0	34	42.8	+50.8	131.5	1
2	39	56.8	+46.3	126.6	39	20.7	+47.0	127.3	38	44.1	+47.6	127.9	38	06.9	+48.3	128.6	37	29.3	+48.9	129.2	36	51.2	+49.5	129.7	36	12.6	+50.0	130.3	35	33.6	+50.5	130.9	2
3	40	43.1	+45.8	125.8	40	07.7	+46.6	126.5	39	31.7	+47.3	127.1	38	55.2	+48.0	127.8	38	18.2	+48.6	128.4	37	40.7	+49.2	129.0	37	02.6	+49.8	129.6	36	24.1	+50.4	130.2	3
4	41	29.0	+45.5	124.9	40	54.3	+46.3	125.6	40	19.0	+47.0	126.3	39	43.2	+47.6	127.0	39	06.8	+48.3	127.7	38	29.9	+48.9	128.3	37	52.4	+49.6	128.9	37	14.5	+50.1	129.5	4
5	42	14.5	+44.7	124.1	41	40.6	+45.8	124.8	41	06.0	+46.6	125.5	40	30.8	+47.4	126.2	39	55.1	+48.0	126.9	39	18.8	+48.6	127.6	38	42.0	+49.2	128.2	38	04.6	+49.9	128.8	5
6	42	59.6	+44.7	123.2	42	26.4	+45.5	123.9	41	52.6	+46.3	124.7	41	18.2	+46.9	125.4	40	43.1	+47.7	126.1	40	07.4	+48.4	126.8	39	31.2	+49.0	127.5	38	54.5	+49.6	128.1	6
7	43	44.3	+44.2	122.2	43	11.9	+45.1	123.0	42	38.9	+45.8	123.8	42	05.1	+46.6	124.6	41	30.8	+47.3	125.3	40	55.8	+48.0	126.0	40	20.2	+48.7	126.7	39	44.1	+49.3	127.4	7
8	44	28.5	+43.8	121.3	43	57.0	+44.6	122.1	43	24.7	+45.4	122.9	42	51.7	+46.2	123.7	42	18.1	+46.9	124.5	41	43.8	+47.7	125.2	41	08.9	+48.4	125.9	40	33.4	+49.0	126.6	8
9	45	12.3	+43.2	120.3	44	41.6	+44.1	121.2	44	10.1	+45.0	122.0	43	37.9	+45.8	122.8	43	05.0	+46.6	123.6	42	31.5	+47.3	124.4	41	57.3	+48.0	125.1	41	22.4	+48.7	125.9	9
10	45	55.5	+42.8	119.4	45	25.7	+43.7	120.2	44	55.1	+44.5	121.1	44	23.7	+45.4	121.9	43	51.6	+46.2	122.8	43	18.8	+46.8	123.6	42	45.3	+47.7	124.3	42	11.1	+48.4	125.1	10
11	46	38.3	+42.1	118.3	46	09.4	+43.1	119.3	45	39.6	+44.1	120.2	45	09.1	+44.9	121.0	44	37.8	+45.7	121.9	44	05.7	+46.6	122.7	43	33.0	+47.3	123.5	42	59.5	+48.0	124.3	11
12	47	20.4	+41.6	117.3	46	52.5	+42.6	118.2	46	23.7	+43.5	119.2	45	54.0	+44.4	120.1	45	23.5	+45.3	121.0	44	52.3	+46.1	121.8	44	20.3	+46.9	122.7	43	47.5	+47.7	123.5	12
13	48	0.20	+41.0	116.2	47	35.1	+42.0	117.2	47	07.2	+43.0	118.2	46	38.4	+43.9	119.1	46	08.8	+44.8	120.0	45	38.4	+45.7	120.9	45	07.2	+46.5	121.8	44	35.2	+47.3	122.6	13
14	48	43.0	+40.3	115.1	48	17.1	+41.3	116.1	47	50.2	+42.4	117.1	47	22.3	+43.4	118.1	46	53.6	+44.3	119.1	46	24.1	+45.2	120.0	45	53.7	+46.0	120.9	45	22.5	+46.9	121.7	14
15	49	23.3	+39.7	114.0	48	58.4	+40.8	115.0	48	32.6	+41.8	116.1	48	05.7	+42.8	117.1	47	37.9	+43.8	118.1	47	09.3	+44.7	119.0	46	39.7	+45.6	119.9	46	09.4	+46.4	120.9	15
16	50	0.30	+38.5	112.8	49	39.2	+40.1	113.9	49	14.4	+41.1	115.0	48	48.5	+42.2	116.0	48	21.7	+43.2	117.0	47	54.0	+44.2	118.0	47	25.3	+45.2	119.0	46	55.8	+46.0	119.9	16
17	50	41.9	+38.2	111.6	50	19.3	+39.3	112.8	49	55.5	+40.5	113.9	49	30.7	+41.6	114.9	49	04.9	+42.7	116.0	48	38.2	+43.6	117.0	48	10.5	+44.6	118.0	47	41.8	+45.5	119.0	17
18	51	20.1	+37.4	110.4	50	58.6	+38.7	111.6	50	36.0	+39.8	112.7	50	12.3	+41.0	113.8	49	47.6	+42.0	114.9	49	21.8	+43.1	116.0	48	27.3	+45.1	118.0	18				
19	51	57.5	+36.6	109.2	51	37.3	+37.8	110.3	51	15.8	+39.1	111.5	50	53.3	+40.2	112.7	50	29.6	+41.3	113.8	50	04.9	+42.4	114.9	49	39.1	+43.5	116.0	49	12.4	+44.4	117.0	19
20	52	34.1	+35.7	107.9	52	15.1	+37.0	109.1	51	54.9	+38.3	110.3	51	33.5	+39.5	111.5	51	10.9	+40.7	112.6	50	47.3	+41.8	113.8	50	22.6	+42.8	114.9	49	56.8	+43.9	116.0	20
21	53	0.98	+34.2	106.5	52	52.1	+36.2	107.8	52	33.2	+37.4	109.0	52	13.0	+38.7	110.3	51	51.6	+39.9	111.5	51	29.1	+41.1	112.6	51	05.4	+42.3	113.8	50	40.7	+43.3	114.9	21
22	53	44.6	+33.8	105.2	53	28.3	+35.2	106.5	53	10.6	+36.6	107.7	52	51.7	+37.9	109.0	52	31.5	+39.2	110.2	52	10.2	+40.4	111.5	51	47.7	+41.5	112.6	51	24.0	+42.7	113.8	22
23	54	18.4	+32.8	103.8	54	03.5	+34.2	105.1	53	47.2	+35.7	106.4	53	29.6	+37.0	107.7	53	10.7	+38.3	109.0	52	50.6	+39.6	110.2	52	29.2	+40.8	111.5	52	06.7	+41.9	112.7	23
24	54	51.2	+31.4	102.3	54	37.7	+33.3	103.7	54	22.9	+34.7	105.0	54	06.6	+36.1	106.4	53	49.0	+37.5	107.7	53	30.2	+38.7	109.0	53	10.0	+40.1	110.2	52	48.6	+41.3	111.5	24
25	55	23.0	+30.7	100.8	55	11.0	+32.2	102.2	54	57.6	+33.7	103.6	54	42.7	+35.2	105.0	54	26.5	+36.6	106.4	54	08.9	+38.0	107.7	53	50.1	+39.2	109.0	53	29.9	+40.5	110.3	25
26	55	53.7	+29.5	99.3	55	43.2	+31.1	100.7	55	31.3	+32.6	102.2	55	17.9	+34.2	103.6	55	31.0	+35.6	105.0	54	46.9	+37.0	106.4	54	29.3	+38.4	107.7	54	10.4	+39.7	109.0	26
27	56	23.2	+28.2	97.7	56	14.3	+29.9	99.2	56	03.9	+31.6	100.7	55	52.1	+33.1	102.1	55	38.7	+34.6	103.6	55	23.9	+36.1	105.0	55	07.7	+37.5	106.4	54	50.1	+38.8	107.7	27
28	56	51.4	+27.1	96.1	56	44.2	+28.8	97.7	56	35.5	+30.3	99.2	56	25.2	+31.9	100.6	56	13.3	+33.6	102.1	56	00.0	+35.0	103.6	55	28.9	+38.0	106.4	54	27.8	+37.0	107.0	28
29	57	18.5	+25.7	94.5	57	13.0	+27.4	95.0	57	18.4	+22.9	97.1	56	57.1	+30.9	99.1	56	16.7	+26.0	92.4	56	35.0	+34.1	102.1	56	21.7	+35.5	103.6	56	06.9	+37.0	105.0	29
30	59	31.1	+16.7	83.8	59	36.7	+18.6	85.5	59	40.5	+20.6	87.2	59	42.5	+22.6	88.9	59	42.7	+24.5	90.6	59	41.1	+26.4	92.4	59	37.8	+28.2	94.1	59	32.6	+30.1	95.8	35
31	59	47.8	+15.0	81.9	59	55.3	+17.1	83.6	60	0.1	+19.0	85.4	60	0.51	+21.0	87.1	60	07.2	+23.0	88.8	60	07.5	+24.5	90.6	60	06.0	+26.8	92.3	60	02.7	+28.7	94.0	36
32	60	0.28	+13.3	80.0	60	12.4	+15.3	81.7	60	20.1	+17.4	83.4	60	26.1	+19.5	85.2	60	30.2	+21.3	87.0	60	32.4	+23.4	88.7	60	32.8	+25.3	90.5	60	31.4			

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 38°, 322°

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.								
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z									
0	38	23.2	-47.3	128.2	37	45.8	-47.9	128.9	37	07.9	-48.5	129.4	36	29.6	-49.1	130.0	35	50.7	-49.6	130.6	35	11.5	-50.2	131.1	34	31.8	-50.7	131.6	33	51.8	-51.2	132.1	0
1	37	35.9	-47.6	129.0	36	57.9	-48.2	129.6	36	19.4	-48.8	130.2	35	40.5	-49.4	130.7	35	01.1	-49.9	131.3	34	21.3	-50.4	131.8	33	41.1	-50.8	132.3	33	00.6	-51.4	132.8	1
2	36	48.3	-47.9	129.8	36	09.7	-48.5	130.4	35	30.6	-49.0	130.9	34	51.1	-49.5	131.4	34	11.2	-50.1	131.9	33	30.9	-50.6	132.4	32	50.3	-51.1	132.9	32	09.2	-51.5	133.4	2
3	36	00.4	-48.1	130.5	35	21.2	-48.7	131.1	34	41.6	-49.3	131.6	34	01.6	-49.8	132.1	33	21.1	-50.3	132.6	32	40.3	-50.8	133.1	31	59.2	-51.3	133.5	31	17.7	-51.7	134.0	3
4	35	12.3	-48.4	131.3	34	32.5	-48.9	131.8	33	52.3	-49.5	132.3	33	11.8	-50.0	132.8	32	30.8	-50.5	133.3	31	49.5	-50.9	133.7	31	07.9	-51.4	134.2	30	26.0	-51.9	134.6	4
5	34	23.9	-48.7	132.0	33	43.6	-49.2	132.5	33	02.8	-49.7	133.0	32	21.8	-50.2	133.4	31	40.3	-50.7	133.9	30	58.6	-51.2	134.3	30	16.5	-51.6	134.8	29	34.1	-52.0	135.2	5
6	33	35.2	-48.9	132.7	32	54.4	-49.5	133.2	32	13.1	-49.9	133.6	31	31.6	-50.4	134.1	30	49.6	-50.8	134.5	30	07.4	-51.3	134.9	29	24.9	-51.7	135.3	28	42.1	-52.2	135.7	6
7	32	46.3	-49.1	133.4	32	04.9	-49.6	133.8	31	23.2	-50.1	134.3	30	41.2	-50.6	134.7	29	58.8	-51.0	135.1	29	16.1	-51.5	135.5	28	33.2	-51.9	135.9	27	49.9	-52.3	136.3	7
8	31	57.2	-49.3	134.1	31	15.3	-49.8	134.5	30	33.1	-50.3	134.9	29	50.6	-50.8	135.3	29	07.8	-51.2	135.7	28	24.6	-51.6	136.1	27	41.3	-52.1	136.5	26	57.6	-52.4	136.8	8
9	31	07.9	-49.5	134.7	30	25.5	-50.8	135.2	29	42.8	-50.5	135.6	28	59.8	-50.9	136.0	27	16.6	-51.4	136.3	26	49.2	-52.1	137.0	26	05.2	-52.5	137.4	9				
10	30	18.4	-49.8	135.4	29	35.5	-50.2	135.8	28	52.3	-50.6	136.2	28	08.9	-51.1	136.6	27	25.2	-51.5	136.9	26	41.3	-51.9	137.3	25	57.1	-52.3	137.6	25	12.7	-52.7	137.9	10
11	29	28.6	-49.9	136.0	28	45.3	-50.4	136.4	28	01.7	-50.8	136.8	27	17.8	-51.2	137.1	26	33.7	-51.6	137.5	25	49.4	-52.0	137.8	24	20.0	-52.7	138.4	11				
12	28	38.7	-50.1	136.7	27	54.9	-50.5	137.0	27	10.9	-50.9	137.4	26	26.6	-51.3	137.7	25	42.1	-51.7	138.1	24	12.4	-52.5	138.7	23	27.3	-52.9	139.0	12				
13	27	48.6	-50.2	137.3	27	04.4	-50.7	137.6	26	20.0	-51.1	138.0	25	35.3	-51.5	138.3	24	50.4	-51.9	138.6	23	19.9	-52.6	139.2	22	34.4	-53.0	139.5	13				
14	26	58.4	-50.4	137.9	26	13.7	-50.8	138.2	25	28.9	-51.3	138.6	24	43.8	-51.6	138.9	23	58.5	-52.0	139.2	22	27.3	-52.7	139.7	21	41.4	-53.0	140.0	14				
15	26	08.0	-50.6	138.5	25	22.9	-50.9	138.8	24	37.6	-51.3	139.1	23	52.2	-51.8	139.4	23	06.5	-52.1	139.7	22	20.6	-52.4	140.0	21	34.6	-52.8	140.2	20	48.4	-53.2	140.5	15
16	25	17.4	-50.7	139.1	24	32.0	-51.1	139.4	23	46.3	-51.5	139.7	23	00.4	-51.8	140.0	22	14.4	-52.2	140.3	21	28.2	-52.6	140.5	20	41.8	-52.9	140.8	19	55.2	-53.2	141.0	16
17	24	26.7	-50.8	139.7	23	40.9	-51.3	140.0	22	54.8	-51.6	140.3	22	08.6	-52.0	140.5	21	22.2	-52.3	140.8	20	35.6	-52.6	141.0	19	48.9	-53.0	141.3	17				
18	23	35.9	-51.0	140.3	22	49.6	-51.3	140.6	22	03.2	-51.7	140.8	21	16.6	-52.0	141.1	20	29.9	-52.4	141.3	19	43.0	-52.8	141.8	18	08.7	-53.3	142.0	18				
19	22	44.9	-51.1	140.9	21	58.3	-51.5	141.1	21	11.5	-51.8	141.4	20	24.6	-52.2	141.6	19	37.5	-52.5	141.8	18	50.2	-52.8	142.0	18	02.9	-53.2	142.2	17	15.4	-53.5	142.4	19
20	21	53.8	-51.2	141.4	21	06.8	-51.5	141.7	20	19.7	-51.9	141.9	19	32.4	-52.2	142.1	18	45.0	-52.6	142.3	17	57.4	-52.9	142.5	17	09.7	-53.2	142.7	16	21.9	-53.5	142.9	20
21	21	02.6	-51.3	142.0	20	15.3	-51.7	142.2	19	27.8	-52.0	142.4	18	40.2	-52.4	142.6	17	52.4	-52.6	142.8	17	04.5	-52.9	143.0	16	16.5	-53.2	143.2	15	28.4	-53.5	143.4	21
22	20	11.3	-51.4	142.5	19	23.6	-51.7	142.8	18	35.8	-52.1	143.0	17	47.8	-52.4	143.2	16	59.8	-52.8	143.4	15	11.6	-53.1	143.5	15	23.3	-53.4	143.7	14	34.9	-53.7	143.9	22
23	19	19.9	-51.5	143.1	18	31.9	-51.9	143.3	17	43.7	-52.2	143.5	16	55.4	-52.5	143.7	16	07.0	-52.8	143.8	15	18.5	-53.1	144.0	14	29.9	-53.3	144.2	13	41.2	-53.6	144.3	23
24	18	28.4	-51.6	143.6	17	40.0	-51.9	143.8	16	51.5	-52.2	144.0	16	02.9	-52.5	144.2	15	42.4	-52.8	144.3	13	36.6	-53.5	144.6	12	47.6	-53.7	144.8	24				
25	17	36.8	-51.7	144.2	16	48.1	-52.0	144.3	15	59.3	-52.3	144.5	15	10.4	-52.6	144.7	14	21.4	-52.9	144.8	13	32.3	-53.2	145.0	12	43.1	-53.5	145.1	11	53.9	-53.8	145.2	25
26	16	45.1	-51.8	144.7	15	56.1	-52.1	144.9	15	07.0	-52.4	145.0	14	17.8	-52.7	145.2	13	28.5	-53.0	145.3	12	39.1	-53.3	145.5	11	49.6	-53.5	145.6	10	00.1	-53.8	145.7	26
27	15	53.3	-51.8	145.2	15	04.0	-52.1	145.4	14	14.6	-52.5	145.5	13	25.1	-52.8	145.7	12	35.5	-53.0	145.8	11	56.1	-53.6	146.0	10	06.3	-53.8	146.1	27				
28	15	01.5	-51.9	145.7	14	11.9	-52.3	145.9	13	22.1	-52.5	146.0	12	32.3	-52.7	146.2	11	42.5	-53.1	146.3	10	2.5	-53.6	146.5	9	12.5	-53.9	146.6	8				
29	9	49.1	-52.2	148.8	8	57.8	-52.6	148.9	8	06.4	-52.8	149.0	7	14.9	-53.0	149.0	6	23.5	-53.3	149.1	5	32.0	-53.5	149.2	3	48.9	-54.0	149.2	34				
30	8	56.9	-52.3	149.3	8	05.2	-52.5	149.4	7	13.6	-52.8	149.4	6	21.9	-53.0	149.5	5	30.2	-53.3	149.6	4	46.7	-53.6	149.6	3	54.9	-54.0	149.7	35				
31	8	04.6	-52.3	149.8	7	12.7	-52.6	149.9	6	20.8	-52.8	150.0	5	28.9	-53.1	150.0	4	36.9	-53.3	150.0	3	44.9	-53.5	150.1	2	52.9	-53.8	150.1	36				
32	7	12.3	-52.4	150.3	6	20.1	-52.6	150.3	5	28.0	-52.9	150.4	4	35.8	-53.1	150.4	3	43.6	-53.3	150.5	2	51.4	-53.6	150.5	1	06.9	-54.0	150.5	37				
33	5	19.9	-52.4	150.8	4	35.1	-52.8	150.9	3	42.1	-52.7	151.0	2	50.3	-53.4	150.9	1	57.8	-53.6	151.0	0	1.5	-53.7	151.0	0	12.9	-54.0	151.0	38				
34	0	12.9	-52.4	151.3	3	41.1	-52.7	151.3	2	49.2	-53.1	151.3	1	51.5	-53.1	151.3	0	10.7	-53.6	151.3	0</												

39°, 321° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	38°			39°			40°			41°			42°			43°			44°			45°			Dec.								
Dec.	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.								
0	37	45.8	+46.6	127.2	37	09.2	+47.2	127.9	36	32.2	+47.8	128.4	35	54.6	+48.5	129.0	35	16.6	+49.1	129.6	34	38.2	+49.6	130.1	33	59.3	+50.2	130.6	33	20.1	+50.6	131.1	0
1	38	32.4	+46.2	126.4	37	56.4	+47.0	127.1	37	20.0	+47.6	127.7	36	43.1	+48.2	128.3	36	05.7	+48.8	128.9	35	27.8	+49.4	129.4	34	49.5	+49.9	130.0	34	10.7	+50.5	130.5	1
2	39	18.6	+45.9	125.6	38	43.4	+46.5	126.3	38	07.6	+47.2	126.9	37	31.3	+47.9	127.5	36	54.5	+48.5	128.1	36	17.2	+49.1	128.7	35	39.4	+49.7	129.3	35	01.2	+50.3	129.8	2
3	40	04.5	+45.5	124.8	39	29.9	+46.3	125.5	38	54.8	+47.0	126.1	38	19.2	+47.6	126.8	37	43.0	+48.3	127.4	37	06.3	+48.9	128.0	36	29.1	+49.5	128.6	35	51.5	+50.0	129.2	3
4	40	50.0	+45.1	123.9	40	16.2	+45.8	124.6	39	41.8	+46.6	125.3	39	06.8	+47.3	126.0	38	31.3	+47.9	126.6	37	55.2	+48.6	127.3	37	18.6	+49.2	127.9	36	41.5	+49.8	128.5	4
5	41	35.1	+44.7	123.1	41	02.0	+45.5	123.8	40	28.4	+46.2	124.5	39	54.1	+46.9	125.2	39	19.2	+47.6	125.9	38	43.8	+48.3	126.5	38	07.8	+48.9	127.2	37	31.3	+49.5	127.8	5
6	42	19.8	+44.3	122.2	41	47.5	+45.1	122.9	41	14.6	+45.8	123.7	40	41.0	+46.6	124.4	40	06.8	+47.3	125.1	39	32.1	+48.0	125.8	38	56.7	+48.7	126.4	38	20.8	+49.3	127.1	6
7	43	04.1	+43.8	121.2	42	32.6	+44.7	122.0	42	00.4	+45.5	122.8	41	27.6	+46.2	123.5	40	54.1	+47.0	124.3	40	20.1	+47.6	125.0	39	45.4	+48.3	125.7	39	10.1	+49.0	126.3	7
8	43	47.9	+43.4	120.3	43	17.3	+44.2	121.1	42	45.9	+45.0	121.9	42	13.8	+45.9	122.7	41	41.1	+46.6	123.4	41	07.7	+47.3	124.2	40	33.7	+48.0	124.9	39	59.1	+48.7	125.6	8
9	44	31.3	+42.8	119.3	44	01.5	+43.7	120.2	43	30.9	+44.6	121.0	42	59.7	+45.4	121.8	42	27.7	+46.2	122.6	41	55.0	+47.0	123.4	41	21.7	+47.7	124.1	40	47.8	+48.4	124.8	9
10	45	14.1	+42.3	118.3	44	45.2	+43.3	119.2	44	15.5	+44.2	120.1	43	45.1	+45.0	120.9	43	13.9	+45.8	121.7	42	42.0	+46.6	122.5	42	09.4	+47.4	123.3	41	36.2	+48.0	124.0	10
11	45	56.4	+41.8	117.3	45	28.5	+42.7	118.2	44	59.7	+43.6	119.1	44	30.1	+44.5	120.0	43	28.6	+46.2	121.6	42	56.8	+46.9	122.4	42	24.2	+47.7	123.2	11				
12	46	38.2	+41.2	116.3	46	11.2	+42.2	117.2	45	43.3	+43.2	118.1	45	14.6	+44.1	119.0	44	45.1	+44.9	119.9	44	14.8	+45.7	120.8	43	43.7	+46.6	121.6	43	11.9	+47.4	122.4	12
13	47	19.4	+40.6	115.2	46	53.4	+41.6	116.2	46	26.5	+42.6	117.1	45	58.7	+43.5	118.1	45	30.0	+44.5	119.0	45	00.5	+45.4	119.9	44	30.3	+46.1	120.7	43	59.3	+46.9	121.5	13
14	48	00.0	+40.0	114.1	47	35.0	+41.0	115.1	47	09.1	+42.0	116.1	46	42.2	+43.0	117.1	46	14.5	+43.9	118.0	45	45.9	+44.8	118.9	44	46.2	+46.6	120.7	14				
15	48	40.0	+39.3	113.0	48	16.0	+40.4	114.0	47	51.1	+41.4	115.1	47	25.2	+42.5	116.1	46	58.4	+43.4	117.0	46	30.7	+44.4	118.0	46	02.2	+45.2	118.9	45	32.8	+46.1	119.8	15
16	49	19.3	+38.6	111.9	48	56.4	+39.7	112.9	48	32.5	+40.8	114.0	48	07.7	+41.8	115.0	47	41.8	+42.9	116.0	47	15.1	+43.8	117.0	46	47.4	+44.8	117.9	46	18.9	+45.6	118.9	16
17	49	57.9	+37.8	110.7	49	36.1	+39.0	111.8	49	13.3	+40.2	112.9	48	49.5	+41.2	113.9	48	24.7	+42.3	115.0	47	58.9	+43.3	116.0	47	32.2	+44.2	116.9	47	04.5	+45.2	117.9	17
18	50	35.7	+37.1	109.5	50	15.1	+38.3	110.6	49	53.5	+39.4	111.7	49	30.7	+40.6	112.8	49	07.0	+41.6	113.9	48	42.2	+42.7	114.9	48	16.4	+43.7	115.9	47	49.7	+44.7	116.9	18
19	51	12.8	+36.2	108.2	50	53.4	+37.5	109.4	50	32.9	+38.7	110.5	49	11.3	+39.9	111.7	49	48.6	+41.0	112.8	49	24.9	+41.2	113.8	49	00.1	+43.2	114.9	48	34.4	+44.1	115.9	19
20	51	49.0	+35.4	106.9	51	30.9	+36.7	108.1	51	11.6	+38.0	109.3	50	51.2	+39.2	110.5	50	29.6	+40.4	111.6	50	07.0	+41.4	112.7	49	43.3	+42.5	113.8	49	18.5	+43.6	114.9	20
21	52	24.4	+34.5	105.6	52	07.6	+35.8	106.9	51	49.6	+37.1	108.1	51	30.4	+38.4	109.3	51	10.0	+39.6	110.5	50	48.4	+40.8	111.6	50	25.8	+41.9	112.7	50	02.1	+42.9	113.8	21
22	52	58.9	+33.5	104.3	52	43.4	+35.0	105.5	52	26.7	+36.3	106.8	52	08.8	+37.5	108.0	51	49.6	+38.8	109.2	51	29.2	+40.0	110.4	51	07.7	+41.2	111.6	50	45.0	+42.4	112.7	22
23	53	32.4	+32.6	102.9	53	18.4	+34.0	104.2	53	03.0	+35.4	105.5	52	46.3	+36.8	106.8	52	28.4	+38.0	108.0	52	09.2	+39.3	109.2	51	48.9	+40.5	110.4	51	27.4	+41.6	111.6	23
24	54	05.0	+31.5	101.5	53	52.4	+33.0	102.8	53	38.4	+34.4	104.1	53	23.1	+35.8	105.4	53	06.4	+37.2	106.7	52	48.5	+38.5	108.0	52	29.4	+39.7	109.2	52	09.0	+41.0	110.5	24
25	54	36.5	+30.4	100.0	54	25.4	+31.9	101.4	54	12.8	+33.5	102.7	53	58.9	+34.9	104.1	53	32.6	+36.3	105.4	53	27.0	+37.7	106.7	53	09.1	+39.0	108.0	52	50.0	+40.2	109.3	25
26	55	06.9	+29.4	98.5	55	57.3	+30.9	99.9	54	46.3	+32.4	101.3	54	33.8	+33.9	102.7	54	19.9	+35.4	104.1	54	04.7	+36.7	105.4	53	48.1	+38.1	106.7	53	30.2	+39.4	108.0	26
27	55	36.3	+28.1	97.0	55	28.2	+29.8	98.4	55	18.7	+31.3	99.8	55	40.6	+31.2	100.8	55	53.5	+34.3	102.7	54	41.4	+35.8	104.0	54	09.6	+38.5	106.7	27				
28	56	04.4	+26.9	95.4	55	58.0	+28.6	96.9	55	50.0	+30.2	98.3	55	40.6	+31.8	99.8	55	29.6	+33.4	101.2	55	52.2	+34.9	102.6	55	48.1	+37.7	105.4	28				
29	56	31.3	+25.6	93.8	56	26.6	+27.3	94.4	56	20.2	+28.3	95.4	56	28.7	+32.2	96.0	56	12.4	+30.6	99.7	55	52.1	+33.2	101.2	55	39.7	+35.3	102.6	55	25.8	+36.8	104.1	29
30	56	56.9	+24.3	92.1	56	53.9	+26.0	93.7	56	49.2	+27.8	95.2	56	43.0	+29.5	96.7	56	35.2	+31.1	98.2	56	25.9	+32.7	99.7	56	15.0	+34.2	101.2	56	2.6	+35.7	102.7	30
31	57	21.2	+22.9	90.5	57	19.9	+24.7	92.0	57	17.0	+26.5	93.6	57	12.5	+28.2	95.1	57	06.3	+29.9	96.7	56	58.6	+31.5	98.2	56	49.2	+33.2	99.7	56	38.3	+34.8	101.2	31
32	57	44.1	+21.5	88.7	57	44.6	+23.4	90.3	57	43.5	+25.1	91.5	57	40.7	+26.9	93.5	57	36.2	+28.6	95.1	57	30.1	+30.3	96.7	57	22.4	+32.0	98.2	57	13.1	+33.6	99.7	32
33	58	05.6	+20.0	87.0	58	08.0	+21.8	88.6																									

LATITUDE CONTRARY NAME TO DECLINATION **L.H.A. 39°, 321°**

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
0	37 45.8 -46.9	127.2	37 09.2 -47.5	127.9	36 32.2 -48.2	128.4	35 54.6 -48.7	129.0	35 16.6 -49.3	129.6	34 38.2 -49.9	130.1	33 59.3 -50.3	130.6	33 20.1 -50.9	131.1	32 29.2 -51.1	131.8	32 11.7 -51.2	132.4	31 38.1 -51.4	133.0	30 46.9 -51.4	133.0	0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
1	36 58.9 -47.2	128.0	36 21.7 -47.8	128.6	35 44.0 -48.4	129.2	35 05.9 -49.0	129.7	34 27.3 -49.5	130.3	33 48.3 -50.0	130.8	33 09.0 -50.6	131.3	32 29.2 -51.1	131.8	32 11.7 -51.2	132.4	31 38.1 -51.4	132.4	30 46.9 -51.4	133.0	30 55.5 -51.6	133.6	4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
2	36 11.7 -47.5	128.8	35 33.9 -48.1	129.4	34 55.6 -48.6	129.9	34 16.9 -49.2	130.4	33 37.8 -49.7	130.9	32 58.3 -50.3	131.4	32 18.4 -50.8	131.9	31 38.1 -51.2	132.4	30 46.9 -51.4	133.0	30 55.5 -51.6	133.6	4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
3	35 24.2 -47.7	129.6	34 45.8 -48.3	130.1	34 07.0 -48.9	130.6	33 27.7 -49.4	131.1	32 48.1 -50.0	131.6	32 08.0 -50.4	132.1	31 27.6 -50.8	132.5	30 46.9 -51.4	133.0	30 55.5 -51.6	133.6	4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
4	34 36.5 -48.0	130.3	33 57.5 -48.6	130.8	33 18.1 -49.2	131.3	32 38.3 -49.7	131.8	31 58.1 -50.2	132.3	31 17.6 -50.7	132.7	30 36.7 -51.1	133.2	29 55.5 -51.6	133.6	29 00.0 +46.5	0.0	39 00.0 +46.5	0.0	40 00.0 +46.4	0.0	41 00.0 +46.4	0.0	42 00.0 +46.4	0.0	43 00.0 +46.4	0.0	44 00.0 +46.4	0.0	45 00.0 +46.4	0.0	90																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
5	33 48.5 -48.3	131.0	33 08.9 -48.4	131.5	32 28.9 -49.3	132.0	31 48.6 -49.8	132.5	31 07.9 -50.3	132.9	30 26.9 -50.8	133.3	29 45.6 -51.3	133.8	29 03.9 -51.7	134.2	28 55.5 -51.3	135.1	28 00.2 -48.5	135.1	27 20.1 -49.0	135.2	26 38.7 -49.0	135.3	25 45.5 -51.3	135.9	24 38.7 -49.0	136.1	23 11.7 -48.7	132.4	22 31.1 -49.3	132.9	21 30.0 -49.3	134.0	20 47.8 -49.4	133.6	19 30.3 -49.9	134.0	18 28.1 -49.7	134.2	17 45.5 -51.0	135.4	16 20.4 -49.7	134.2	15 36.4 -50.2	137.6	14 24.9 -49.4	134.5	13 29.4 -49.4	135.7	12 27.2 -49.7	136.1	11 20.3 -49.0	135.5	10 30.7 -49.0	137.3	9 29.2 -49.4	134.2	8 10.4 -50.1	134.6	7 39.4 -49.7	135.4	6 20.4 -50.1	138.5	5 34.0 -49.1	133.8	4 29.5 -49.2	134.2	3 30.4 -49.1	133.8	2 28.1 -50.6	135.0	1 28.8 -51.1	140.2	0 20.7 -49.8	140.9	-1 24.1 -50.9	140.6	0 37.7 -51.3	140.8	1 19.4 -51.1	141.1	0 46.2 -50.3	138.2	-1 21.4 -50.4	141.4	1 17.5 -51.4	143.9	0 55.9 -50.5	138.8	-1 22.9 -50.2	136.1	1 16.0 -49.7	135.7	0 6.0 -50.9	139.1	-1 27.2 -50.3	136.7	1 16.3 -49.9	136.4	0 23.0 -49.0	133.1	-1 21.9 -50.7	139.7	1 16.4 -50.6	139.4	0 23.5 -50.4	139.4	-1 24.8 -50.7	140.0	1 18.8 -51.4	140.2	0 24.5 -50.3	138.5	-1 21.2 -50.5	143.0	1 15.2 -51.1	142.3	0 24.3 -51.1	141.7	1 14.2 -51.1	142.3	0 15.5 -51.1	141.7	1 15.1 -51.1	142.3	0 15.2 -51.1	142.3	1 14.3 -51.1	142.3	0 14.4 -51.1	141.9	1 15.1 -51.1	141.9	0 15.5 -51.1	141.9	1 15.2 -51.1	141.9	0 15.4 -51.1	141.9	1 15.3 -51.1	141.9	0 15.4 -51.1	141.9	1 15.5 -51.1	141.9	0 15.6 -51.1	141.9	1 15.7 -51.1	141.9	0 15.8 -51.1	141.9	1 15.9 -51.1	141.9	0 16.0 -51.1	141.9	1 16.1 -51.1	141.9	0 16.2 -51.1	142.3	1 16.3 -51.1	142.3	0 16.4 -51.1	142.3	1 16.5 -51.1	142.3	0 16.6 -51.1	142.3	1 16.7 -51.1	142.3	0 16.8 -51.1	142.3	1 16.9 -51.1	142.3	0 17.0 -51.1	142.3	1 17.1 -51.1	142.3	0 17.2 -51.1	142.3	1 17.3 -51.1	142.3	0 17.4 -51.1	142.3	1 17.5 -51.1	142.3	0 17.6 -51.1	142.3	1 17.7 -51.1	142.3	0 17.8 -51.1	142.3	1 17.9 -51.1	142.3	0 18.0 -51.1	142.3	1 18.1 -51.1	142.3	0 18.2 -51.1	142.3	1 18.3 -51.1	142.3	0 18.4 -51.1	142.3	1 18.5 -51.1	142.3	0 18.6 -51.1	142.3	1 18.7 -51.1	142.3	0 18.8 -51.1	142.3	1 18.9 -51.1	142.3	0 19.0 -51.1	142.3	1 19.1 -51.1	142.3	0 19.2 -51.1	142.3	1 19.3 -51.1	142.3	0 19.4 -51.1	142.3	1 19.5 -51.1	142.3	0 19.6 -51.1	142.3	1 19.7 -51.1	142.3	0 19.8 -51.1	142.3	1 19.9 -51.1	142.3	0 20.0 -51.1	142.3	1 20.1 -51.1	142.3	0 20.2 -51.1	142.3	1 20.3 -51.1	142.3	0 20.4 -51.1	142.3	1 20.5 -51.1	142.3	0 20.6 -51.1	142.3	1 20.7 -51.1	142.3	0 20.8 -51.1	142.3	1 20.9 -51.1	142.3	0 21.0 -51.1	142.3	1 21.1 -51.1	142.3	0 21.2 -51.1	142.3	1 21.3 -51.1	142.3	0 21.4 -51.1	142.3	1 21.5 -51.1	142.3	0 21.6 -51.1	142.3	1 21.7 -51.1	142.3	0 21.8 -51.1	142.3	1 21.9 -51.1	142.3	0 22.0 -51.1	142.3	1 22.1 -51.1	142.3	0 22.2 -51.1	142.3	1 22.3 -51.1	142.3	0 22.4 -51.1	142.3	1 22.5 -51.1	142.3	0 22.6 -51.1	142.3	1 22.7 -51.1	142.3	0 22.8 -51.1	142.3	1 22.9 -51.1	142.3	0 23.0 -51.1	142.3	1 23.1 -51.1	142.3	0 23.2 -51.1	142.3	1 23.3 -51.1	142.3	0 23.4 -51.1	142.3	1 23.5 -51.1	142.3	0 23.6 -51.1	142.3	1 23.7 -51.1	142.3	0 23.8 -51.1	142.3	1 23.9 -51.1	142.3	0 24.0 -51.1	142.3	1 24.1 -51.1	142.3	0 24.2 -51.1	142.3	1 24.3 -51.1	142.3	0 24.4 -51.1	142.3	1 24.5 -51.1	142.3	0 24.6 -51.1	142.3	1 24.7 -51.1	142.3	0 24.8 -51.1	142.3	1 24.9 -51.1	142.3	0 25.0 -51.1	142.3	1 25.1 -51.1	142.3	0 25.2 -51.1	142.3	1 25.3 -51.1	142.3	0 25.4 -51.1	142.3	1 25.5 -51.1	142.3	0 25.6 -51.1	142.3	1 25.7 -51.1	142.3	0 25.8 -51.1	142.3	1 25.9 -51.1	142.3	0 26.0 -51.1	142.3	1 26.1 -51.1	142.3	0 26.2 -51.1	142.3	1 26.3 -51.1	142.3	0 26.4 -51.1	142.3	1 26.5 -51.1	142.3	0 26.6 -51.1	142.3	1 26.7 -51.1	142.3	0 26.8 -51.1	142.3	1 26.9 -51.1	142.3	0 27.0 -51.1	142.3	1 27.1 -51.1	142.3	0 27.2 -51.1	142.3	1 27.3 -51.1	142.3	0 27.4 -51.1	142.3	1 27.5 -51.1	142.3	0 27.6 -51.1	142.3	1 27.7 -51.1	142.3	0 27.8 -51.1	142.3	1 27.9 -51.1	142.3	0 28.0 -51.1	142.3	1 28.1 -51.1	142.3	0 28.2 -51.1	142.3	1 28.3 -51.1	142.3	0 28.4 -51.1	142.3	1 28.5 -51.1	142.3	0 28.6 -51.1	142.3	1 28.7 -51.1	142.3	0 28.8 -51.1	142.3	1 28.9 -51.1	142.3	0 29.0 -51.1	142.3	1 29.1 -51.1	142.3	0 29.2 -51.1	142.3	1 29.3 -51.1	142.3	0 29.4 -51.1	142.3	1 29.5 -51.1	142.3	0 29.6 -51.1	142.3	1 29.7 -51.1	142.3	0 29.8 -51.1	142.3	1 29.9 -51.1	142.3	0 30.0 -51.1	142.3	1 30.1 -51.1	142.3	0 30.2 -51.1	142.3	1 30.3 -51.1	142.3	0 30.4 -51.1	142.3	1 30.5 -51.1	142.3	0 30.6 -51.1	142.3	1 30.7 -51.1	142.3	0 30.8 -51.1	142.3	1 30.9 -51.1	142.3	0 31.0 -51.1	142.3	1 31.1 -51.1	142.3	0 31.2 -51.1	142.3	1 31.3 -51.1	142.3	0 31.4 -51.1	142.3	1 31.5 -51.1	142.3	0 31.6 -51.1	142.3	1 31.7 -51.1	142.3	0 31.8 -51.1	142.3	1 31.9 -51.1	142.3	0 32.0 -51.1	142.3	1 32.1 -51.1	142.3	0 32.2 -51.1	142.3	1 32.3 -51.1	142.3	0 32.4 -51.1	142.3	1 32.5 -51.1	142.3	0 32.6 -51.1	142.3	1 32.7 -51.1	142.3	0 32.8 -51.1	142.3	1 32.9 -51.1	142.3	0 33.0 -51.1	142.3	1 33.1 -51.1	142.3	0 33.2 -51.1	142.3	1 33.3 -51.1	142.3	0 33.4 -51.1	142.3	1 33.5 -51.1	142.3	0 33.6 -51.1	142.3	1 33.7 -51.1	142.3	0 33.8 -51.1	142.3	1 33.9 -51.1	142.3	0 34.0 -51.1	142.3	1 34.1 -51.1	142.3	0 34.2 -51.1	142.3	1 34.3 -51.1	142.3	0 34.4 -51.1	142.3	1 34.5 -51.1	142.3	0 34.6 -51.1	142.3	1 34.7 -51.1	142.3	0 34.8 -51.1	142.3	1 34.9 -51.1	142.3	0 35.0 -51.1	142.3	1 35.1 -51.1	142.3	0 35.2 -51.1	142.3	1 35.3 -51.1	142.3	0 35.4 -51.1	142.3	1 35.5 -51.1	142.3	0 35.6 -51.1	142.3	1 35.7 -51.1	142.3	0 35.8 -51.1	142.3	1 35.9 -51.1	142.3	0 36.0 -51.1	142.3	1 36.1 -51.1	142.3	0 36.2 -51.1	142.3	1 36.3 -51.1	142.3	0 36.4 -51.1	142.3	1 36.5 -51.1	142.3	0 36.6 -51.1	142.3	1 36.7 -51.1	142.3	0 36.8 -51.1	142.3	1 36.9 -51.1	142.3	0 37.0 -51.1	142.3	1 37.1 -51.1	142.3	0 37.2 -51.1	142.3	1 37.3 -51.1	142.3	0 37.4 -51.1	142.3	1 37.5 -51.1	142.3	0 37.6 -51.1	142.3	1 37.7 -51.1	142.3	0 37.8 -51.1	142.3	1 37.9 -51.1	142.3	0 38.0 -51.1	142.3	1 38.1 -51.1	142.3	0 38.2 -51.1	142.3	1 38.3 -51.1	142.3	0 38.4 -51.1	142.3	1 38.5 -51.1	142.3	0 38.6 -51.1	142.3	1 38.7 -51.1	142.3	0 38.8 -51.1	142.3	1 38.9 -51.1	142.3	0 39.0 -51.1	142.3	1 39.1 -51.1	142.3	0 39.2 -51.1	142.3	1 39.3 -51.

40°, 320° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	38°			39°			40°			41°			42°			43°			44°			45°			Dec.
Dec.	Hc	d	Z	Dec.																					
0	37 07.9 +46.2	126.3		36 32.2 +46.8	126.9		35 55.9 +47.5	127.5		35 19.2 +48.1	128.0		34 42.0 +48.7	128.6		34 04.4 +49.3	129.1		33 26.3 +49.9	129.6		32 47.9 +50.3	130.1		0
1	37 54.1 +45.8	125.5		37 19.0 +46.5	126.1		36 43.4 +47.2	126.7		36 07.3 +47.8	127.3		35 30.7 +48.5	127.9		34 53.7 +49.0	128.4		34 16.2 +49.6	128.9		33 38.2 +50.2	129.5		1
2	38 39.9 +45.5	124.6		38 05.5 +46.2	125.3		37 30.6 +46.9	125.9		36 55.1 +47.6	126.5		36 19.2 +48.2	127.1		35 42.7 +48.8	127.7		35 05.8 +49.4	128.3		34 28.4 +49.9	128.8		2
3	39 25.4 +45.1	123.8		38 51.7 +45.9	124.5		38 17.5 +46.5	125.1		37 42.7 +47.2	125.8		37 07.4 +47.8	126.4		36 31.5 +48.5	127.0		35 55.2 +49.1	127.6		35 18.3 +49.8	128.1		3
4	40 10.5 +44.7	122.9		39 37.6 +45.5	123.6		39 04.0 +46.3	124.3		38 29.9 +46.9	125.0		37 55.2 +47.6	125.6		37 20.0 +48.3	126.2		36 44.3 +48.9	126.9		36 08.1 +49.4	127.4		4
5	40 55.2 +44.4	122.1		40 23.1 +45.1	122.8		39 50.3 +45.8	123.5		39 16.8 +46.6	124.8		38 42.8 +47.3	125.5		38 08.3 +47.0	126.1		37 33.2 +48.6	126.1		36 57.5 +49.3	126.7		5
6	41 39.6 +43.8	121.2		41 08.2 +44.7	121.9		40 36.1 +45.5	122.7		40 03.4 +46.3	123.4		39 30.1 +47.0	124.1		38 56.2 +47.7	124.7		38 21.8 +48.3	125.4		37 46.8 +48.9	126.0		6
7	42 23.4 +43.5	120.3		41 52.9 +44.2	121.0		41 21.6 +45.1	121.8		40 49.7 +45.8	122.5		40 17.1 +46.6	123.2		39 43.9 +47.3	123.9		39 10.1 +48.0	124.6		38 35.7 +48.7	125.3		7
8	43 06.9 +42.9	119.3		42 37.1 +43.9	120.1		42 06.7 +44.6	120.9		41 35.5 +45.5	121.7		41 03.7 +46.2	122.4		40 31.2 +47.0	123.1		39 58.1 +47.7	123.8		39 24.4 +48.3	124.5		8
9	43 49.8 +42.5	118.3		43 21.0 +43.3	119.2		42 51.3 +44.3	120.0		42 21.0 +45.0	120.8		41 49.9 +45.9	121.6		41 18.2 +46.6	122.3		40 45.8 +47.3	123.0		40 12.7 +48.1	123.8		9
10	44 32.3 +42.0	117.4		44 04.3 +42.9	118.2		43 35.6 +43.7	119.1		43 06.0 +44.7	119.9		42 35.8 +45.4	120.7		42 04.8 +46.2	121.5		41 33.1 +47.0	122.2		41 00.8 +47.7	123.0		10
11	45 14.3 +41.4	116.4		44 47.2 +42.4	117.2		44 19.3 +43.3	118.1		43 50.7 +44.1	119.0		43 21.2 +45.0	119.8		42 51.0 +45.9	120.6		41 20.1 +46.6	121.4		41 48.5 +47.4	122.2		11
12	45 55.7 +40.8	115.3		45 29.6 +41.8	116.2		45 02.6 +42.8	117.1		44 34.8 +43.7	118.0		44 06.2 +44.6	118.9		43 36.9 +45.4	119.7		43 06.7 +46.3	120.5		42 35.9 +47.0	121.3		12
13	46 36.5 +40.2	114.3		46 11.4 +41.2	115.2		45 45.4 +42.2	116.1		45 18.5 +43.2	117.1		44 50.8 +44.1	117.9		44 22.3 +45.0	118.8		43 53.0 +45.8	119.7		43 22.9 +46.6	120.5		13
14	47 16.7 +39.6	113.2		46 52.6 +40.7	114.2		46 27.6 +41.7	115.1		46 01.7 +42.7	116.1		45 34.9 +43.6	117.0		45 07.3 +44.5	117.9		44 38.8 +45.4	118.8		44 09.5 +46.2	119.6		14
15	47 56.3 +38.9	112.1		47 33.3 +40.0	113.1		47 09.3 +41.1	114.1		46 44.4 +42.0	115.0		46 18.5 +43.1	116.0		45 51.8 +44.0	116.9		45 24.2 +44.9	117.8		44 55.7 +45.8	118.7		15
16	48 35.2 +38.3	110.9		48 13.3 +39.4	112.0		47 50.4 +40.4	113.0		47 26.4 +41.6	114.0		47 01.6 +42.5	115.0		46 35.8 +43.5	115.9		46 09.1 +44.4	116.9		45 41.5 +45.4	117.8		16
17	49 13.5 +37.5	109.7		48 52.7 +38.7	110.8		48 30.8 +39.8	111.9		48 08.0 +40.9	112.9		47 44.1 +41.9	113.9		47 19.3 +42.9	114.9		46 53.5 +43.9	115.9		46 26.9 +44.8	116.9		17
18	49 51.0 +36.7	108.5		49 31.4 +37.9	109.7		49 10.6 +39.1	110.7		48 48.9 +40.2	111.8		48 26.0 +41.4	112.9		48 02.2 +42.4	113.9		47 37.4 +43.4	114.9		47 11.7 +44.3	115.9		18
19	50 27.7 +36.0	107.3		50 09.3 +37.2	108.5		49 49.7 +38.4	109.6		49 29.1 +39.6	110.7		49 07.4 +40.7	111.8		48 44.6 +41.4	112.8		48 20.8 +42.8	113.9		47 56.0 +43.9	114.9		19
20	51 03.7 +35.1	106.0		50 46.5 +36.4	107.2		50 28.1 +37.7	108.4		50 08.7 +38.8	109.5		49 48.1 +40.0	110.6		49 26.4 +41.1	111.7		49 03.6 +42.2	112.8		48 39.9 +43.2	113.9		20
21	51 38.8 +34.2	104.7		51 22.9 +35.5	106.0		51 05.8 +36.8	107.1		50 47.5 +38.1	108.3		50 28.1 +39.3	109.5		50 07.5 +40.5	110.6		49 45.8 +41.6	111.7		49 23.1 +42.7	112.8		21
22	52 13.0 +33.2	103.4		51 58.4 +34.7	104.7		51 42.6 +36.0	105.9		51 25.6 +37.3	107.1		51 07.4 +38.5	108.3		50 48.0 +39.7	109.4		50 27.4 +40.9	110.6		50 05.8 +42.0	111.7		22
23	52 46.2 +32.4	102.0		52 33.1 +33.7	103.3		52 18.6 +35.1	104.6		52 02.9 +36.4	105.8		51 45.9 +37.7	107.1		51 27.7 +39.0	108.3		51 08.3 +40.2	109.4		50 47.8 +41.3	110.6		23
24	53 18.6 +31.3	100.6		53 06.8 +32.8	102.0		52 53.7 +34.2	103.2		52 39.3 +35.6	104.5		52 23.6 +36.9	105.8		52 06.7 +38.2	107.0		51 48.5 +39.5	108.2		51 29.1 +40.7	109.4		24
25	53 49.9 +30.2	99.2		53 39.6 +31.8	100.5		53 27.9 +33.2	101.9		53 14.9 +34.7	103.2		53 00.5 +36.1	104.5		52 44.9 +37.4	105.8		52 28.0 +38.6	107.0		52 09.8 +39.9	108.2		25
26	54 20.1 +29.2	97.7		54 11.4 +30.7	99.1		54 01.1 +32.3	100.5		53 49.6 +33.6	101.8		53 36.6 +35.1	103.1		53 22.3 +36.5	104.5		53 06.6 +37.9	105.8		52 49.7 +39.1	107.0		26
27	54 49.3 +28.0	96.2		54 42.1 +29.6	97.6		54 33.4 +31.1	99.0		54 23.2 +32.7	100.4		54 11.7 +34.1	101.8		53 58.8 +35.6	103.1		53 44.5 +36.9	104.4		53 28.8 +38.3	105.8		27
28	55 17.3 +26.8	94.7		55 11.7 +28.4	96.1		55 04.5 +30.1	97.5		54 55.9 +31.6	99.0		54 45.8 +33.2	100.4		54 34.4 +34.6	101.7		54 21.4 +36.1	103.1		54 07.1 +37.5	104.5		28
29	55 44.1 +25.6	93.1		55 40.1 +27.2	94.6		55 34.6 +28.9	96.0		55 27.5 +30.5	97.5		55 19.0 +32.0	98.9		55 09.0 +33.6	100.3		54 57.5 +35.1	101.7		54 44.6 +36.5	103.1		29
30	56 09.7 +24.2	91.5		56 07.3 +26.0	93.0		56 03.5 +27.6	94.5		55 58.0 +29.3	95.9		55 51.0 +31.0	97.4		55 42.6 +32.5	98.9		55 32.6 +34.0	100.3		55 21.1 +35.6	101.7		30
31	56 33.9 +23.0	89.8		56 33.3 +24.7	91.3		56 31.1 +26.4	92.9		56 27.3 +28.2	94.4		56 22.0 +29.8	95.9		56 15.1 +31.4	97.4		56 06.6 +33.0	98.8		55 56.7 +34.5	100.3		31
32	56 56.9 +21.5	88.1		56 58.0 +23.3	89.7		56 57.5 +25.1	91.2		56 55.5 +26.8	92.8		56 51.8 +28.5	94.3		56 46.5 +30.3	95.8		56 39.6 +31.9	97.3		56 31.2 +33.4	98.8		32
33	57 18.4 +20.1	86.4		57 21.3 +22.0	88.0		57 22.6 +23.8	89.5		57 22.3 +25.5	91.1		57 20.3 +27.3	92.7		57 16.7 +29.0	94.2		57 11.5 +30.7	95.8		57 04.6 +32.4	97.3		33
34	57 38.5 +18.7	84.7		57 43.0 +20.8	85.7		57 30.2 +22.7	87.2		57 47.8 +24.2	89.4		57 47.6 +25.9	91.0		57 45.7 +27.7	92.6		57 42.2 +29.4	94.2		57 37.0 +31.1	95.8		34
35	57 57.2 +17.1	82.9		58 03.8 +18.9	84.5		58 08.7 +20.8	86.1		58 12.0 +22.7	87.7		58 13.5 +24.6	89.3		58 13.4 +26.4	90.9		58 11.6 +28.1	92.5		58 08.1 +29.9	94.1		35
36	58 14.3 +15.5	81.1		58 22.7 +17.5	82.7		58 29.5 +19.4	84.3		58 34.7 +21.2	85.9		58 38.1 +23.1	87.6		58 39.8 +24.9	89.2		58 39.7 +26.8	90.8					

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 40°, 320°

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
0	37 07.9 -46.5	126.3	36 32.2 -47.2	126.9	35 55.9 -47.8	127.5	35 19.2 -48.4	128.0	34 42.0 -48.9	128.6	34 04.4 -49.5	129.1	33 26.3 -50.0	129.6	32 47.9 -50.6	130.1	31 57.3 -50.8	130.8	31 46.0 -50.4	130.9	31 06.5 -50.9	131.4	30 15.6 -51.1	132.0	0
1	36 21.4 -46.8	127.1	35 45.0 -47.4	127.6	35 08.1 -48.0	128.2	34 30.8 -48.6	128.7	33 53.1 -49.2	129.3	33 14.9 -49.8	129.8	32 36.3 -50.3	130.3	31 57.3 -50.8	130.8	31 46.0 -50.4	130.9	31 06.5 -50.9	131.4	30 15.6 -51.1	132.0	2		
2	35 34.6 -47.1	127.8	34 57.6 -47.7	128.4	34 20.1 -48.3	128.9	33 42.2 -48.9	129.4	33 03.9 -49.4	130.0	32 25.1 -49.9	130.4	31 46.0 -50.4	130.9	31 06.5 -50.9	131.4	30 15.6 -51.1	132.0	3						
3	34 47.5 -47.3	128.6	34 09.9 -48.0	129.1	33 31.8 -48.5	129.6	32 53.3 -49.0	130.1	32 14.5 -49.7	130.6	31 35.2 -50.1	131.1	30 55.6 -50.6	131.6	30 05.0 -50.8	132.2	29 24.5 -51.3	132.6	4						
4	34 00.2 -47.7	129.3	33 21.9 -48.2	129.8	32 43.3 -48.8	130.3	32 04.3 -49.3	130.8	31 24.8 -49.8	131.3	30 45.1 -50.3	131.7	30 05.0 -50.8	132.2	29 24.5 -51.3	132.6	3								
5	33 12.5 -47.8	130.1	32 33.7 -48.4	130.6	31 54.5 -49.0	131.0	31 15.0 -49.6	131.5	30 35.0 -50.0	131.9	29 54.8 -50.5	132.4	29 14.2 -51.0	132.8	28 33.2 -51.4	133.2	27 23.1 -51.5	133.8	5						
6	32 24.7 -48.2	130.8	31 45.3 -48.7	131.3	31 05.5 -49.1	131.7	30 25.4 -49.7	132.2	29 45.0 -50.2	132.6	29 04.3 -50.7	133.0	28 23.2 -51.1	133.4	27 41.8 -51.5	133.8	6								
7	31 36.5 -48.3	131.5	30 56.6 -48.9	131.9	30 16.4 -49.4	132.4	29 35.7 -49.8	132.8	28 54.8 -50.3	133.2	28 13.6 -50.8	133.6	27 32.1 -51.3	134.0	26 50.3 -51.7	134.4	7								
8	30 48.2 -48.6	132.2	30 07.7 -49.0	132.6	29 27.0 -49.6	133.0	28 45.9 -50.1	133.4	28 04.5 -50.6	133.8	27 22.8 -51.0	134.2	26 40.8 -51.4	134.6	25 58.6 -51.9	134.9	8								
9	29 59.6 -48.7	132.9	29 18.7 -49.3	133.3	28 37.4 -49.8	133.7	27 55.8 -50.2	134.1	27 13.9 -50.6	134.4	26 31.8 -51.1	134.8	25 49.4 -51.6	135.1	25 06.7 -51.9	135.5	9								
10	29 10.9 -49.0	133.5	28 29.4 -49.5	133.9	27 47.6 -49.9	134.3	27 05.6 -50.4	134.7	26 23.3 -50.9	135.0	25 40.7 -51.3	135.4	24 57.8 -51.6	135.7	24 14.8 -52.1	136.0	10								
11	28 21.9 -49.2	134.2	27 39.9 -49.6	134.6	26 57.7 -50.1	134.9	26 15.2 -50.6	135.3	25 32.4 -51.0	135.6	24 49.4 -51.4	136.0	24 06.2 -51.8	136.3	23 22.7 -52.2	136.6	11								
12	27 32.7 -49.3	134.8	26 50.3 -49.8	135.2	26 07.6 -50.2	135.5	25 24.6 -50.6	135.9	24 41.4 -51.1	136.2	23 58.0 -51.5	136.5	23 14.4 -51.9	136.8	22 30.5 -52.3	137.1	12								
13	26 43.4 -49.5	135.5	26 00.5 -49.9	135.8	25 17.4 -50.4	136.2	24 34.0 -50.9	136.5	23 50.3 -51.2	136.8	23 06.5 -51.6	137.1	22 22.5 -52.0	137.4	21 38.2 -52.4	137.6	13								
14	25 53.9 -49.7	136.1	25 10.6 -50.2	136.4	24 27.0 -50.6	136.8	23 43.1 -50.9	137.1	22 59.1 -51.3	137.4	22 14.9 -51.8	137.6	21 30.5 -52.2	137.9	20 45.8 -52.4	138.2	14								
15	25 04.2 -49.8	136.7	24 20.4 -50.2	137.0	23 36.4 -50.6	137.3	22 52.2 -51.1	137.6	22 07.8 -51.5	137.9	21 23.1 -51.8	138.2	20 38.3 -52.2	138.4	19 53.4 -52.6	138.7	15								
16	24 14.4 -49.9	137.3	23 30.2 -50.4	137.6	22 45.8 -50.8	137.9	22 01.1 -51.2	138.2	21 16.3 -51.6	138.5	20 31.3 -51.9	138.7	19 46.1 -52.3	139.0	19 00.8 -52.7	139.2	16								
17	23 24.5 -50.1	137.9	22 39.8 -50.5	138.2	21 55.0 -50.9	138.5	21 09.9 -51.3	138.8	20 24.7 -51.6	139.0	19 39.4 -52.1	139.3	18 53.8 -52.4	139.5	18 08.1 -52.7	139.7	17								
18	23 34.4 -50.3	138.5	21 49.3 -50.6	138.8	21 04.1 -51.1	139.1	20 18.6 -51.4	139.3	19 33.1 -51.8	139.6	18 47.3 -52.1	139.8	18 01.4 -52.4	140.0	17 15.4 -52.8	140.2	18								
19	21 44.1 -50.3	139.1	20 58.7 -50.8	139.4	20 13.0 -51.1	139.6	19 27.2 -51.5	139.9	18 41.3 -51.9	140.1	17 55.2 -52.2	140.3	17 09.0 -52.6	140.5	16 22.6 -52.9	140.7	19								
20	20 53.8 -50.5	139.7	20 07.9 -50.8	140.0	19 21.9 -51.2	140.2	18 35.7 -51.5	140.4	17 49.4 -51.9	140.6	17 03.0 -52.3	140.8	16 16.4 -52.6	141.0	15 29.7 -52.9	141.2	20								
21	20 03.3 -50.6	140.3	19 17.1 -51.0	140.5	18 30.7 -51.3	140.7	17 44.2 -51.7	140.9	16 57.5 -52.0	141.1	16 10.7 -52.3	141.3	15 23.8 -52.7	141.5	14 36.8 -53.0	141.7	21								
22	19 12.7 -50.7	140.9	18 26.1 -51.0	141.1	17 39.4 -51.5	141.3	16 52.5 -51.8	141.5	16 05.5 -52.1	141.7	15 18.4 -52.5	141.8	14 31.1 -52.7	142.0	13 43.8 -53.1	142.2	22								
23	18 22.0 -50.8	141.4	17 35.1 -51.2	141.6	16 47.9 -51.4	141.8	16 00.7 -51.8	142.0	15 13.4 -52.2	142.2	14 25.9 -52.5	142.3	13 38.4 -52.8	142.5	12 50.7 -53.1	142.6	23								
24	17 31.2 -50.8	142.0	16 43.9 -51.2	142.2	15 56.5 -51.6	142.4	15 08.9 -51.9	142.5	14 21.2 -52.2	142.7	13 33.4 -52.5	142.8	12 45.6 -52.9	143.0	11 57.6 -53.1	143.1	24								
25	16 40.4 -51.0	142.5	15 52.7 -51.3	142.7	15 04.9 -51.7	142.9	14 17.0 -52.0	143.0	13 29.0 -52.3	143.2	12 40.9 -52.6	143.3	11 52.7 -52.9	143.5	11 04.5 -53.2	143.6	25								
26	15 49.4 -51.1	143.1	15 01.4 -51.4	143.3	14 13.2 -51.7	143.4	13 25.0 -52.0	143.6	12 36.7 -52.4	143.7	11 48.3 -52.7	143.8	10 59.8 -52.9	143.9	10 11.3 -53.3	144.1	26								
27	14 58.3 -51.1	143.6	14 10.0 -51.5	143.8	13 21.5 -51.8	143.9	12 33.0 -52.1	144.1	11 44.3 -52.4	144.2	10 55.6 -52.7	144.3	10 06.9 -53.0	144.4	9 18.0 -53.2	144.5	27								
28	14 07.2 -51.2	144.2	13 18.5 -51.5	144.3	12 29.7 -51.8	144.5	11 40.9 -52.2	144.6	10 51.9 -52.4	144.7	10 02.9 -52.7	144.8	9 13.9 -53.0	144.9	8 24.8 -53.3	145.0	28								
29	13 16.0 -51.3	144.7	12 27.0 -51.6	144.8	11 37.9 -51.9	145.0	10 48.7 -52.2	145.1	9 59.5 -52.5	145.2	9 10.2 -52.8	145.3	8 20.9 -53.1	145.4	7 31.5 -53.4	145.5	29								
30	12 24.7 -51.3	145.3	11 35.4 -51.6	145.4	10 46.0 -51.9	145.5	9 56.5 -52.2	145.6	8 07.0 -52.5	145.7	8 17.4 -52.8	145.8	7 27.8 -53.1	145.9	6 38.1 -53.3	145.9	30								
31	11 33.4 -51.4	145.8	10 43.8 -51.7	145.9	9 54.1 -52.0	146.0	8 04.3 -52.3	146.1	7 14.5 -52.6	146.2	7 24.6 -52.8	146.2	6 34.7 -53.1	146.3	5 44.8 -53.4	146.4	31								
32	10 42.0 -51.4	146.3	9 52.1 -51.8	146.4	9 02.1 -52.1	146.5	8 12.0 -52.3	146.6	7 21.9 -52.6	146.7	6 31.8 -52.9	146.7	5 41.6 -53.2	146.8	4 51.4 -53.4	146.8	32								
33	9 50.6 -51.5	146.8	9 00.3 -51.7	146.9	8 10.0 -52.0	147.0	7 19.7 -52.4	147.1	6 29.3 -52.6	147.1	5 38.9 -52.9	147.2	4 48.4 -53.1	147.2	3 58.0 -53.4	147.3	33								
34	8 59.1 -51.5	147.3	8 08.6 -51.9	147.4	7 18.0 -52.1	147.5	6 27.3 -52.3	147.6	5 36.7 -52.7	147.6	4 46.0 -52.9	147.7	3 55.3 -52.4	147.7	2 51.7 -53.4	147.8	34								
35	8 07.6 -51.6	147.9	7 16.7 -51.8	148.0	6 25.9 -52.2	148.0	5 35.0 -52.4	148.1	4 44.0 -52.6	148.1	3 51.3 -52.9	148.1	2 02.1 -53.2	148.2	1 11.7 -53.5	148.2	35								
36	7 16.0 -51.6	148.4	6 24.9 -51.9	148.4	5 33.7 -52.1	148.5	4 42.6 -52.5	148.5	3 51.4 -52.7	148.6	2 00.2 -53.0	148.6	1 20.8 -53.2	148.6	0 24.2 -53.4	149.1	36								
37	6 24.4 -51.6	148.9	5 33.0 -51.9	149.0	4 41.6 -52.2	149.0	3 50.1 -52.4	149.0	2 58.7 -52.7	149.1	2 07.2 -52.9	149.1	1 15.7 -53.2	149.1	0 22.9 -53.4	149.6	37								
38	5 32.8 -51.7	149.4	4 41.1 -51.9	149.5	3 49.4 -52.2	149.5	2 57.7 -52.4	149.5	2 06.0 -52.7	149.5	1 13.3 -52.7	150.0	0 22.5 -52.9	150.0	0 30.7 +53.2	150.0	38								
39	4 41.1 -51.7	149.9	3 49.2 -52.0	150.0	0 20.6 -52.2	151.5	0 31.6 +52.3	28.0	1 24.6 +52.5	28.1	2 17.5 +52.7	28.1	3 10.5 +52.9	28.1	4 03.4 +52.9	27.6	4 56.6 +53.1	27.7	4 49.7 +53.4	27.7	44				
40	3 49.4 -51.7	150.4	2 57.2 -51.9	150.5	2 05.0 -52.2	150.5	0 20.3 -52.4	151.0	0 32.1 +52.7	29.0	1 24.8 +52.7	28.5	2 17.5 +53.0</												

41°, 319° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.								
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z									
0	36	29.6	+45.7	125.3	35	54.6	+46.5	125.9	35	19.2	+47.1	126.5	34	43.3	+47.7	127.0	34	06.9	+48.4	127.6	33	30.1	+48.9	128.1	32	52.8	+49.6	128.6	32	15.2	+50.1	129.1	0
1	37	15.3	+45.5	124.5	36	41.1	+46.1	125.1	36	06.3	+46.8	125.7	35	31.0	+47.5	126.3	34	55.3	+48.1	126.9	34	19.0	+48.8	127.4	33	42.4	+49.3	128.0	33	05.3	+49.8	128.5	1
2	38	00.8	+45.1	123.7	37	27.2	+45.9	124.3	36	53.1	+46.6	124.9	36	18.5	+47.2	125.5	35	43.4	+47.8	126.1	35	07.8	+48.4	126.7	34	31.7	+49.0	127.3	33	55.1	+49.6	127.8	2
3	38	45.9	+44.7	122.8	38	13.1	+45.4	123.5	37	39.7	+46.2	124.1	37	05.7	+46.9	124.8	36	31.2	+47.6	125.4	35	56.2	+48.2	126.0	35	20.7	+48.8	126.6	34	44.7	+49.5	127.1	3
4	39	30.6	+44.4	122.0	38	58.5	+45.1	122.7	38	25.9	+45.8	123.3	37	52.6	+46.6	124.0	37	18.8	+47.2	124.6	36	44.4	+47.9	125.2	36	09.5	+48.6	125.8	35	34.2	+49.1	126.4	4
5	40	15.0	+43.6	121.1	39	43.6	+44.8	121.8	39	11.7	+45.5	122.5	38	39.2	+46.2	123.2	38	06.0	+47.0	123.8	37	32.3	+47.7	124.5	36	58.1	+48.3	125.1	36	23.3	+48.9	125.7	5
6	40	58.9	+43.5	120.2	40	28.4	+44.3	120.9	39	57.2	+45.1	121.7	39	25.4	+45.9	122.4	38	53.0	+46.6	123.1	38	20.0	+47.3	123.7	37	46.4	+47.9	124.4	37	12.2	+48.7	125.0	6
7	41	42.4	+43.1	119.3	41	12.7	+43.9	120.0	40	42.3	+44.7	120.8	40	11.3	+45.5	121.5	39	39.6	+46.2	122.2	39	07.3	+46.9	122.9	38	34.3	+47.7	123.6	38	00.9	+48.3	124.3	7
8	42	25.5	+42.5	118.3	41	56.6	+43.5	119.1	41	27.0	+44.3	119.9	40	56.8	+45.1	120.7	40	25.8	+45.9	121.4	39	54.2	+46.7	122.1	39	22.0	+47.4	122.8	38	49.2	+48.1	123.5	8
9	43	08.0	+42.1	117.4	42	40.1	+43.0	118.2	42	11.3	+43.9	119.0	41	41.9	+44.7	119.8	41	11.7	+45.5	120.6	40	40.9	+47.0	121.3	40	37.3	+47.7	122.7	9				
10	43	50.1	+41.6	116.4	43	23.1	+42.5	117.3	42	55.2	+43.4	118.1	42	26.6	+44.3	118.9	41	57.2	+45.1	119.7	41	27.2	+45.4	120.5	40	56.4	+46.7	121.2	40	25.0	+47.4	121.9	10
11	44	31.7	+41.1	115.4	44	05.6	+42.0	116.3	43	38.6	+42.9	117.1	43	10.9	+43.8	118.0	42	42.3	+44.7	118.8	42	13.1	+45.5	119.6	41	43.1	+46.3	120.4	41	12.4	+47.1	121.1	11
12	45	12.8	+40.4	114.4	44	47.6	+41.4	115.3	44	21.5	+42.5	116.2	43	54.7	+43.3	117.0	43	27.0	+44.2	117.9	42	58.6	+45.0	118.7	42	29.4	+45.9	119.5	41	59.5	+46.7	120.3	12
13	45	53.2	+39.9	113.3	45	29.0	+40.9	114.3	45	04.0	+41.8	115.2	44	38.0	+42.9	116.1	44	11.2	+43.8	116.9	43	43.6	+44.7	117.8	43	15.3	+45.5	118.6	42	46.2	+46.3	119.4	13
14	46	33.1	+39.3	112.2	46	09.9	+40.3	113.2	45	45.8	+41.4	114.1	45	20.9	+42.3	115.1	44	55.0	+43.3	116.0	44	28.3	+44.2	116.9	44	00.8	+45.0	117.7	43	32.5	+45.9	118.6	14
15	47	12.4	+38.5	111.1	46	50.2	+39.7	112.1	46	27.2	+40.7	113.1	46	03.2	+41.7	114.1	45	38.3	+42.7	115.0	45	12.5	+43.7	115.9	44	45.8	+44.6	116.8	44	18.4	+45.4	117.7	15
16	47	50.9	+38.0	110.0	47	29.9	+39.1	111.0	47	07.9	+40.1	112.0	46	44.9	+41.2	113.0	46	21.0	+42.2	114.0	45	56.2	+43.1	114.9	45	30.4	+44.1	115.9	45	03.8	+45.0	116.8	16
17	48	28.9	+37.1	108.8	48	09.0	+38.3	109.9	47	48.0	+39.5	110.9	47	26.1	+40.6	111.9	47	03.2	+41.6	112.9	46	39.3	+42.7	113.9	46	14.5	+43.6	114.9	45	48.8	+44.6	115.8	17
18	49	06.0	+36.5	107.6	48	47.3	+37.7	108.7	48	27.5	+38.8	109.8	48	06.7	+39.9	110.9	47	44.8	+41.0	111.9	47	22.0	+42.0	112.9	46	58.1	+43.1	113.9	46	33.4	+44.0	114.9	18
19	49	42.5	+35.6	106.4	49	25.0	+36.8	107.5	49	06.3	+38.1	108.6	48	46.6	+39.3	109.7	48	25.8	+40.4	110.8	48	04.0	+41.5	111.8	47	41.2	+42.5	112.9	47	17.4	+43.5	113.9	19
20	50	18.1	+34.8	105.2	50	01.8	+36.1	106.3	49	44.4	+37.3	107.5	49	25.9	+38.5	108.6	49	06.2	+39.7	109.7	48	45.5	+40.8	110.7	48	23.7	+41.9	111.8	48	00.9	+42.9	112.8	20
21	50	52.9	+34.0	103.9	50	37.9	+35.3	105.1	50	21.7	+36.6	106.2	50	04.4	+37.8	107.4	49	45.9	+39.0	108.5	49	26.3	+40.2	109.6	49	05.6	+41.3	110.7	48	43.8	+42.4	111.8	21
22	51	26.9	+33.0	102.6	51	13.2	+34.4	103.8	50	58.3	+35.7	105.0	50	42.2	+37.0	106.2	50	24.9	+38.3	107.3	50	06.5	+39.4	108.5	49	46.9	+40.6	109.6	49	26.2	+41.7	110.7	22
23	51	59.9	+32.1	101.2	51	47.6	+33.5	102.5	51	34.0	+34.9	103.7	51	19.2	+36.2	104.9	51	03.2	+37.4	106.1	50	45.9	+38.7	107.3	50	27.5	+39.9	108.5	50	07.9	+41.1	109.6	23
24	52	32.0	+31.2	99.8	52	21.1	+32.6	101.1	52	08.9	+34.0	102.4	51	55.4	+35.3	103.6	51	40.6	+36.7	104.9	51	24.6	+38.0	106.1	51	07.4	+39.2	107.3	50	49.0	+40.4	108.4	24
25	53	0.32	+30.0	98.4	52	53.7	+31.6	99.7	52	42.9	+33.0	101.0	52	30.7	+34.5	102.3	52	17.3	+35.8	103.6	52	02.6	+37.1	104.8	51	46.6	+38.4	106.1	51	29.4	+39.6	107.3	25
26	53	33.2	+29.1	97.0	53	25.3	+30.5	98.3	53	15.9	+32.0	99.6	53	05.2	+33.4	101.0	53	53.1	+34.9	102.3	52	39.7	+36.0	103.5	52	25.0	+37.6	104.8	52	09.0	+38.9	106.1	26
27	54	0.23	+27.9	95.5	53	55.8	+28.9	95.9	53	47.9	+31.0	98.2	53	38.6	+32.5	99.6	53	28.0	+33.9	100.9	53	16.0	+35.3	102.2	53	02.6	+36.7	103.5	52	47.9	+38.1	104.8	27
28	54	30.2	+26.7	94.0	54	25.3	+28.3	95.4	54	18.9	+29.9	96.8	54	11.1	+31.5	98.1	54	01.9	+33.0	99.5	54	51.3	+34.4	100.9	53	39.3	+35.9	102.2	53	26.0	+37.2	103.5	28
29	54	56.9	+25.5	92.4	54	53.6	+27.2	93.9	54	48.8	+28.8	95.3	54	42.6	+30.3	96.7	54	34.9	+31.9	98.1	54	25.7	+33.5	99.5	54	15.2	+36.3	102.2	54	30.2	+36.3	102.2	29
30	55	22.4	+24.3	90.8	55	20.8	+25.9	92.3	55	17.6	+27.6	93.7	55	12.9	+29.3	95.2	55	06.8	+30.8	96.6	54	59.2	+32.3	98.0	54	50.0	+33.9	99.4	54	39.5	+35.4	100.8	30
31	55	46.7	+22.9	89.2	55	46.7	+24.7	90.7	55	45.2	+26.4	92.2	55	42.2	+28.0	93.6	55	37.6	+29.7	95.1	55	31.5	+31.3	96.5	55	23.9	+32.9	98.0	55	14.9	+34.3	99.4	31
32	56	0.96	+21.7	87.6	56	11.4	+23.4	89.1	56	11.6	+25.1	90.6	56	10.2	+26.8	92.1	56	07.3	+28.3	93.5	56	28.8	+30.5	95.0	55	56.8	+31.7	96.5					

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 41° , 319°

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.								
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z									
0	36	29.6	-46.1	125.3	35	54.6	-46.7	125.9	35	19.2	-47.4	126.5	34	43.3	-48.0	127.0	34	06.9	-48.6	127.6	33	30.1	-49.2	128.1	32	52.8	-49.7	128.6	32	15.2	-50.3	129.1	0
1	35	43.5	-46.5	126.1	35	07.9	-47.1	126.7	34	31.8	-47.7	127.2	33	55.3	-48.3	127.8	33	18.3	-48.9	128.3	32	40.9	-49.4	128.8	32	03.1	-49.9	129.3	31	24.9	-50.4	129.8	1
2	34	57.0	-46.7	126.9	34	20.8	-47.3	127.4	33	44.1	-47.9	128.0	33	07.0	-48.5	128.5	32	29.4	-49.0	129.0	31	51.5	-49.6	129.5	31	13.2	-50.2	129.9	30	34.5	-50.7	130.4	2
3	34	10.3	-46.9	127.6	33	33.5	-47.6	128.2	32	56.2	-48.2	128.7	32	18.5	-48.8	129.2	31	40.4	-49.3	129.7	31	01.9	-49.8	130.1	30	23.0	-50.3	130.6	29	43.8	-50.8	131.0	3
4	33	23.4	-47.3	128.4	32	45.9	-47.8	128.9	32	08.0	-48.4	129.4	31	29.7	-48.9	129.9	30	51.1	-49.5	130.3	30	12.1	-50.0	130.8	29	32.7	-50.5	131.2	28	53.0	-50.9	131.6	4
5	32	36.1	-47.5	129.1	31	58.1	-48.1	129.6	31	19.6	-48.6	130.1	30	40.8	-49.2	130.5	30	01.6	-49.7	131.0	29	22.1	-50.2	131.4	28	42.2	-50.6	131.8	28	02.1	-51.2	132.2	5
6	31	48.6	-47.7	129.8	31	10.0	-48.3	130.3	30	31.0	-48.9	130.8	29	51.6	-49.3	131.2	29	11.9	-49.8	131.6	28	31.3	-50.3	132.0	27	51.6	-50.8	132.4	27	10.9	-51.2	132.8	6
7	31	00.9	-48.0	130.6	30	21.7	-48.5	131.0	29	42.1	-49.0	131.4	29	02.3	-49.6	131.9	28	22.1	-50.1	132.3	27	41.6	-50.5	132.7	27	00.8	-51.0	133.0	26	19.7	-51.4	133.4	7
8	30	12.9	-48.2	131.3	29	33.2	-48.7	131.7	28	53.1	-49.2	132.1	28	12.7	-49.7	132.5	27	32.0	-50.2	132.9	26	51.1	-50.7	133.3	26	09.8	-51.1	133.6	25	28.3	-51.6	134.0	8
9	29	24.7	-48.4	131.9	28	44.5	-48.8	132.4	28	03.9	-49.4	132.7	27	23.0	-49.9	133.1	26	41.8	-50.3	133.5	26	00.4	-50.8	133.9	25	18.7	-51.2	134.2	24	36.7	-51.6	134.5	9
10	28	36.3	-48.6	132.6	27	55.6	-49.1	133.0	27	14.5	-49.6	133.4	26	33.1	-50.0	133.8	25	51.5	-50.5	134.1	25	09.6	-50.9	134.5	24	27.5	-51.4	134.8	23	45.1	-51.8	135.1	10
11	27	47.7	-48.7	133.3	27	06.5	-49.3	133.7	26	24.9	-49.7	134.0	25	43.1	-50.2	134.4	25	01.0	-50.7	134.7	24	18.7	-51.1	135.0	23	36.1	-51.5	135.3	22	53.3	-51.9	135.6	11
12	26	59.0	-49.0	133.9	26	17.2	-49.4	134.3	25	35.2	-49.9	134.6	24	52.9	-50.4	135.0	24	10.3	-50.7	135.3	23	27.6	-51.2	135.6	22	44.6	-51.6	135.9	22	01.4	-52.0	136.2	12
13	26	10.0	-49.1	134.6	25	27.8	-49.6	134.9	24	45.3	-50.1	135.3	24	02.5	-50.5	135.6	23	19.6	-50.9	135.9	22	36.4	-51.3	136.2	21	53.0	-51.7	136.5	21	09.4	-52.1	136.7	13
14	25	20.9	-49.3	135.2	24	38.2	-49.8	135.5	23	55.2	-50.2	135.9	23	12.0	-50.6	136.2	22	28.7	-51.1	136.5	21	45.1	-51.5	136.7	20	17.3	-52.2	137.3	14				
15	24	31.6	-49.5	135.8	23	48.4	-49.9	136.2	23	05.0	-50.3	136.5	22	21.4	-50.7	136.7	21	37.6	-51.1	137.0	20	53.6	-51.5	137.3	19	25.1	-52.3	137.8	15				
16	23	42.1	-49.6	136.5	22	58.5	-50.4	136.8	22	14.7	-50.4	137.1	21	30.7	-50.9	137.3	20	46.5	-51.3	137.6	20	02.1	-51.6	137.8	19	17.5	-52.0	138.1	18	32.8	-52.3	138.3	16
17	22	52.5	-49.7	137.1	22	08.5	-50.2	137.4	21	24.3	-50.6	137.6	20	39.8	-50.9	137.9	19	55.2	-51.3	138.1	19	10.5	-51.8	138.4	18	25.5	-52.1	138.6	17				
18	22	02.8	-49.9	137.7	21	18.3	-50.2	138.0	20	33.7	-50.7	138.2	19	48.9	-51.1	138.5	19	03.9	-51.5	138.7	18	18.7	-51.8	138.9	17	33.4	-52.1	139.1	16	48.0	-52.5	139.3	18
19	21	12.9	-50.0	138.3	20	28.1	-50.4	138.5	19	43.0	-50.8	138.8	18	57.8	-51.2	139.0	18	12.4	-51.5	139.2	17	26.9	-51.9	139.4	16	41.3	-52.6	139.6	15				
20	20	22.9	-50.1	138.9	19	37.7	-50.5	139.1	18	52.2	-50.9	139.3	18	06.6	-51.2	139.6	17	20.9	-51.6	139.8	16	35.0	-52.0	140.0	15	49.0	-52.3	140.2	14				
21	19	32.8	-50.2	139.5	18	47.2	-50.8	139.7	18	01.3	-50.9	139.9	17	15.4	-51.4	140.1	16	29.3	-51.7	140.3	15	43.0	-52.0	140.5	14	56.7	-52.4	140.7	14				
22	18	42.6	-50.3	140.0	17	55.6	-50.7	140.3	17	10.4	-51.1	140.5	16	24.0	-51.4	140.6	15	37.6	-51.8	140.8	14	51.0	-52.1	141.0	14	04.3	-52.4	141.2	13				
23	17	52.3	-50.4	140.6	17	05.9	-50.8	140.8	16	19.3	-51.2	141.0	15	32.6	-51.5	141.2	14	45.8	-51.9	141.4	13	58.9	-52.2	141.5	13	11.9	-52.5	141.7	12				
24	17	01.9	-50.6	141.2	16	21.5	-51.0	141.4	15	28.1	-51.2	141.5	14	41.1	-51.6	141.7	13	53.9	-51.9	141.9	13	06.7	-52.3	142.0	12	19.4	-52.6	142.2	11				
25	16	11.3	-50.6	141.7	15	24.2	-51.0	141.9	14	36.9	-51.3	142.1	13	49.5	-51.6	142.2	12	02.0	-52.0	142.4	11	26.8	-52.6	142.7	10	39.1	-53.0	142.8	15				
26	15	20.7	-50.6	142.3	14	33.2	-51.0	142.5	13	45.6	-51.4	142.6	12	57.9	-51.8	142.8	11	20.0	-52.1	143.0	10	34.2	-52.7	143.1	9	46.1	-52.9	143.2	26				
27	14	30.1	-50.8	142.9	13	42.2	-51.1	143.0	12	54.2	-51.4	143.2	11	06.1	-51.7	143.3	11	18.0	-52.1	143.4	10	29.8	-52.4	143.5	9	41.5	-52.7	143.6	27				
28	13	39.3	-50.9	143.4	12	51.1	-51.2	143.5	11	02.8	-51.5	143.7	10	14.4	-51.8	143.8	10	25.9	-52.1	143.9	9	37.4	-52.4	144.0	8	48.8	-52.7	144.1	28				
29	12	48.4	-50.9	144.0	7	43.2	-51.5	146.7	6	0.3	-52.0	146.8	5	12.6	-52.4	146.9	4	22.3	-52.6	147.0	3	56.1	-52.8	147.1	2	70.2	-52.7	147.2	29				
30	11	57.5	-50.9	144.5	10	19.7	-51.6	144.6	9	30.7	-51.9	144.8	8	41.6	-52.2	144.9	7	52.5	-52.5	145.0	7	03.3	-52.8	145.1	6	14.1	-53.1	145.1	30				
31	10	06.6	-51.1	145.0	10	17.4	-51.4	145.1	9	28.1	-51.6	145.2	8	38.8	-52.0	145.3	7	49.4	-52.2	145.4	7	00.0	-52.5	145.5	5	21.0	-53.1	145.6	31				
32	10	15.5	-51.0	145.6	9	26.0	-51.4	145.7	8	36.5	-51.7	145.8	7	46.8	-52.0	145.8	6	07.5	-52.6	146.0	5	17.7	-52.8	146.0	4	27.9	-53.1	146.1	32				
33	9	24.5	-51.2	146.1	8	34.6	-51.4	146.2	7	44.8	-51.8	146.3	6	04.9	-52.3	146.4	5	14.9	-52.6	146.5	4	24.9	-52.9	146.5	3	34.8	-53.1	146.5	33				
34	8	33.3	-51.1	146.6	7	42.3	-51.5	146.7	6	03.0	-51.9	146.8	5	12.6	-52.4	146.9	4	22.3	-52.6	147.0	3	41.7	-53.2	147.0	2	41.7	-53.2	147.0	34				
35	7	42.2</																															

42°, 318° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	38°			39°			40°			41°			42°			43°			44°			45°			Dec.				
Dec.	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.				
0	35	50.7	+45.5	124.4	35	16.6	+46.1	125.0	34	42.0	+46.8	125.5	34	06.9	+47.4	126.1	33	31.3	+48.1	126.6	32	55.3	+48.7	127.1	31	42.0	+49.8	128.1	0
1	36	36.2	+45.0	123.6	36	02.7	+45.8	124.2	35	28.8	+46.4	124.8	34	54.3	+47.2	125.3	34	19.4	+47.8	125.9	33	44.0	+48.4	126.4	32	31.8	+49.6	127.5	1
2	37	21.2	+44.8	122.7	36	48.5	+45.5	123.4	36	15.2	+46.2	124.0	35	41.5	+46.8	124.6	35	07.2	+47.5	125.2	34	32.4	+48.1	125.7	33	21.4	+49.3	126.8	2
3	38	06.0	+44.3	121.9	37	34.0	+45.1	122.5	37	01.4	+45.8	123.2	36	28.3	+46.5	123.8	35	54.7	+47.2	124.4	35	20.5	+47.9	125.0	34	10.7	+49.1	126.1	3
4	38	50.3	+44.0	121.0	38	19.1	+44.7	121.7	37	47.2	+45.5	122.4	37	14.8	+46.3	123.0	36	41.9	+46.9	123.6	36	08.4	+47.5	124.3	35	34.3	+48.3	124.9	4
5	39	34.3	+43.5	120.1	39	03.8	+44.4	120.9	38	32.7	+45.2	121.5	38	01.1	+45.8	122.2	37	28.8	+46.6	122.9	36	55.9	+47.3	123.5	36	22.6	+47.9	124.1	5
6	40	17.8	+43.2	119.2	39	48.2	+43.9	120.0	39	17.9	+44.7	120.7	38	46.9	+45.6	121.4	38	15.4	+46.3	122.1	37	43.2	+47.0	122.7	37	10.5	+47.7	123.4	6
7	41	01.0	+42.7	118.3	40	32.1	+43.6	119.1	40	02.6	+44.4	119.8	39	32.5	+45.1	120.5	39	01.7	+45.9	121.2	38	30.2	+46.7	121.9	37	58.2	+47.4	122.6	7
8	41	43.7	+42.2	117.4	41	15.7	+43.1	118.2	40	47.0	+44.0	118.9	40	17.6	+44.8	119.7	39	47.6	+45.5	120.4	39	16.9	+46.3	121.1	38	13.6	+47.8	122.5	8
9	42	25.9	+41.7	116.4	41	58.8	+42.6	117.2	41	31.0	+43.5	118.0	41	02.4	+44.3	118.8	40	33.1	+45.2	119.6	40	03.2	+45.0	120.3	39	32.6	+46.7	121.0	9
10	43	07.6	+41.2	115.5	42	41.4	+42.2	116.3	42	14.5	+43.0	117.1	41	46.7	+44.0	117.9	41	18.3	+44.8	118.7	40	49.1	+45.6	119.5	40	19.3	+46.4	120.2	10
11	43	48.8	+40.7	114.5	43	23.6	+41.6	115.3	42	57.5	+42.6	116.2	42	30.7	+43.5	117.0	42	03.1	+44.3	117.8	41	34.7	+45.2	118.6	41	05.7	+45.9	119.4	11
12	44	29.5	+40.2	113.4	44	05.2	+41.2	114.3	43	40.1	+42.1	115.2	43	14.2	+43.0	116.1	42	47.4	+43.9	116.9	42	19.9	+44.8	117.7	41	51.6	+45.6	118.5	12
13	45	09.7	+39.5	112.4	44	46.4	+40.5	113.3	44	22.2	+41.5	114.2	43	57.2	+42.5	115.1	43	31.3	+43.4	116.0	43	04.7	+44.3	116.8	42	37.2	+45.2	117.6	13
14	45	49.2	+38.9	111.3	45	26.9	+40.0	112.3	45	03.7	+41.0	113.2	44	39.7	+42.0	114.1	44	14.7	+43.0	115.0	43	49.0	+43.8	115.9	42	55.0	+45.6	117.6	14
15	46	28.1	+38.3	110.2	46	06.9	+39.4	111.2	45	44.7	+40.5	112.2	45	21.7	+41.4	113.1	44	57.7	+42.4	114.0	44	32.8	+43.4	114.9	44	07.1	+44.3	115.8	15
16	46	06.4	+37.6	109.1	46	46.3	+38.7	110.1	46	25.2	+39.8	111.1	46	03.1	+40.9	112.1	45	40.1	+41.9	113.0	45	16.5	+42.2	113.9	44	51.4	+43.8	114.9	16
17	47	44.0	+36.9	107.9	47	25.0	+38.0	109.0	47	05.0	+39.1	110.0	46	44.0	+40.2	111.0	46	22.0	+41.3	112.0	45	59.1	+42.3	112.9	45	35.2	+43.3	113.9	17
18	48	20.9	+36.1	106.8	48	03.0	+37.4	107.8	47	44.1	+38.6	108.9	47	24.2	+39.7	109.9	47	03.3	+40.7	110.9	46	41.4	+41.7	111.9	46	18.5	+42.8	112.9	18
19	48	57.0	+35.4	105.5	48	40.4	+36.6	106.6	48	22.7	+37.8	107.7	48	03.9	+38.9	108.8	47	44.0	+40.1	109.8	47	23.1	+41.2	110.9	47	01.3	+42.2	111.9	19
20	49	32.4	+34.6	104.3	49	17.0	+35.8	105.4	49	00.5	+37.0	106.6	48	42.8	+38.3	107.6	48	24.1	+39.4	108.7	48	04.3	+40.5	109.8	47	43.5	+41.6	110.8	20
21	50	07.0	+33.7	103.0	49	52.8	+35.0	104.2	49	37.5	+36.3	105.3	49	03.5	+38.7	107.6	48	44.8	+39.4	108.7	48	25.1	+41.0	109.7	48	04.3	+42.1	110.8	21
22	50	40.7	+32.8	101.7	50	27.8	+34.2	102.9	50	13.8	+35.5	104.1	49	58.6	+36.8	105.3	49	42.2	+38.0	106.4	49	24.7	+39.2	107.5	49	06.1	+40.3	108.6	22
23	51	13.5	+31.9	100.4	51	02.0	+33.3	101.6	50	49.3	+34.6	102.8	50	35.4	+35.9	104.0	50	20.2	+37.2	105.2	50	03.9	+38.5	106.4	49	27.8	+40.8	108.6	23
24	51	45.4	+30.9	99.1	51	35.3	+32.4	100.3	51	23.9	+33.8	101.5	51	11.3	+35.1	102.8	50	57.4	+36.5	104.0	50	42.4	+37.7	105.2	50	26.1	+38.9	106.3	24
25	52	16.3	+30.0	97.7	52	07.7	+31.4	98.9	51	57.7	+32.8	100.2	51	46.4	+34.2	101.5	51	33.9	+35.5	102.7	51	20.1	+36.9	103.9	51	05.0	+38.2	105.1	25
26	52	46.3	+28.9	96.2	52	39.1	+30.4	97.5	52	30.5	+31.9	98.8	52	20.6	+33.3	100.1	52	09.4	+34.7	101.4	51	57.0	+36.0	102.6	51	43.2	+37.3	103.9	26
27	53	15.2	+27.8	94.8	53	09.5	+29.3	96.1	53	02.4	+30.8	97.4	52	53.9	+32.4	98.8	52	44.1	+33.8	100.1	52	33.0	+35.2	101.3	52	20.5	+36.6	102.6	27
28	53	43.0	+26.6	93.3	53	38.8	+28.3	94.7	53	33.2	+29.8	96.0	53	26.3	+31.3	97.3	53	17.9	+32.8	98.7	53	08.2	+34.0	100.0	52	57.1	+35.6	101.3	28
29	54	09.6	+25.5	91.8	54	07.1	+27.1	93.2	54	03.0	+28.7	94.5	53	57.6	+30.2	95.9	53	50.7	+31.8	97.3	53	42.4	+33.3	98.6	53	32.7	+34.7	100.0	53
30	54	35.1	+24.3	90.2	54	34.2	+25.9	91.6	54	31.7	+27.6	93.0	54	27.8	+29.2	94.4	54	22.5	+30.7	95.8	54	15.7	+32.2	97.2	54	07.4	+33.7	98.6	30
31	54	59.4	+23.0	88.6	55	00.1	+24.7	90.1	54	59.3	+26.3	91.5	54	57.0	+28.0	92.9	54	53.2	+29.6	94.3	54	47.9	+31.2	95.8	54	11.3	+32.8	98.6	31
32	55	22.4	+21.7	87.0	55	24.8	+23.4	88.5	55	25.6	+25.1	89.9	55	25.0	+26.7	91.4	55	22.8	+28.4	92.8	55	19.1	+30.4	93.3	55	13.9	+31.6	95.7	32
33	55	44.1	+20.4	85.4	55	48.2	+22.1	86.8	55	50.7	+23.9	88.3	55	51.7	+25.6	89.8	55	51.2	+27.2	91.3	55	49.1	+28.9	92.7	55	45.5	+30.5	94.2	33
34	56	04.5	+18.6	83.7	56	10.3	+20.7	85.2	56	47.8	+22.9	86.7	56	21.5	+22.9	88.0	56	43.8	+23.8	89.5	56	45.3	+28.1	90.2	56	14.2	+31.0	94.1	34
35	56	23.4	+17.6	82.0	56	31.0	+19.4	83.5	56	41.5	+22.9	85.0	56	44.4	+24.6	88.0	56	45.6	+26.4	89.5	56	45.3	+28.1	90.2	56	23.4	+28.5	92.6	35
36	56	41.0	+16.0	80.2	56	50.4	+17.8	81.8	56	58.2	+19.7	83.3	57	04.4	+21.5	84.8	57	09.0	+23.3	86.4	57	12.0	+25.1	87.9	57	13.4	+26.8	89.5	36
37	56	57.0	+14.6	78.5	57	08.2	+16.4	80.0																					

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 42°, 318°

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z			
0	35 50.7 -45.7	124.4	35 16.6 -46.4	125.0	34 42.0 -47.0	125.5	34 06.9 -47.7	126.1	33 31.3 -48.2	126.6	32 55.3 -48.8	127.1	32 18.9 -49.4	127.7	31 42.0 -49.9	128.1	30 52.1 -50.2	128.8	30 01.9 -50.3	129.4	29 50.0 -50.0	129.6	29 11.6 -50.5	130.1	3 28 21.1 -50.7	130.7	4
1	35 05.0 -46.0	125.2	34 30.2 -46.7	125.7	33 55.0 -47.4	126.3	33 19.2 -47.9	126.8	32 43.1 -48.5	127.3	32 06.5 -49.1	127.8	31 29.5 -49.7	128.3	30 52.1 -50.2	128.8	30 01.9 -50.3	129.4	29 50.0 -50.0	129.6	29 11.6 -50.5	130.1	3 28 21.1 -50.7	130.7	4		
2	34 19.0 -46.3	125.9	33 43.5 -46.9	126.5	33 07.6 -47.5	127.0	32 31.3 -48.2	127.5	31 54.6 -48.8	128.0	31 17.4 -49.3	128.5	30 39.8 -49.8	129.0	30 01.9 -50.3	129.4	29 50.0 -50.0	129.6	29 11.6 -50.5	130.1	3 28 21.1 -50.7	130.7	4				
3	33 32.7 -46.6	126.7	32 56.6 -47.2	127.2	32 20.1 -47.8	127.7	31 43.1 -48.4	128.2	31 05.8 -48.9	128.7	30 28.1 -49.5	129.2	29 50.0 -50.0	129.6	29 11.6 -50.5	130.1	3 28 21.1 -50.7	130.7	4								
4	32 46.1 -46.9	127.5	32 09.4 -47.5	128.0	31 32.3 -48.1	128.4	30 54.7 -48.6	128.9	30 16.9 -49.2	129.4	29 38.6 -49.7	129.8	29 00.0 -50.2	130.3	28 21.1 -50.7	130.7	3 28 21.1 -50.7	130.7	4								
5	31 59.2 -47.1	128.2	31 21.9 -47.7	128.7	30 44.2 -48.3	129.1	30 06.1 -48.8	129.6	29 27.7 -49.3	130.0	28 48.9 -49.8	130.5	28 09.8 -50.3	130.9	27 30.4 -50.8	131.3	26 39.6 -51.0	131.9	26 06.3 -51.4	133.6	24 48.6 -51.1	132.5	24 57.5 -51.2	133.0	24 06.3 -51.4	133.6	9
6	31 12.1 -47.4	128.9	30 34.2 -47.9	129.4	29 55.9 -48.5	129.8	29 17.3 -49.0	130.3	28 38.4 -49.6	130.7	27 59.1 -50.0	131.1	27 19.5 -50.5	131.5	26 39.6 -51.0	131.9	26 06.3 -51.4	133.6	24 48.6 -51.1	132.5	24 57.5 -51.2	133.0	24 06.3 -51.4	133.6	9		
7	30 24.7 -47.6	129.6	29 46.3 -48.2	130.1	29 07.4 -48.6	130.5	28 28.3 -49.2	130.9	27 48.8 -49.7	131.3	27 09.1 -50.2	131.7	26 29.0 -50.7	132.1	25 48.6 -51.1	132.5	25 38.3 -50.4	132.7	24 57.5 -51.2	133.0	24 06.3 -51.4	133.6	9				
8	29 37.1 -47.8	130.3	28 58.1 -48.3	130.8	28 18.8 -48.9	131.2	27 39.1 -49.4	131.6	26 59.1 -49.8	132.0	26 18.9 -50.4	132.3	25 38.3 -50.6	132.7	24 57.5 -51.2	133.0	24 06.3 -51.4	133.6	9								
9	28 49.3 -48.0	131.0	28 09.8 -48.6	131.4	27 29.9 -49.1	131.8	26 49.7 -49.5	132.2	26 09.3 -50.1	132.6	25 28.5 -50.5	132.9	24 47.5 -50.8	133.3	24 06.3 -51.4	133.6	9										
10	28 01.3 -48.2	131.7	27 21.2 -48.7	132.1	26 40.8 -49.2	132.5	26 00.2 -49.7	132.8	25 19.2 -50.2	133.2	24 38.0 -50.6	133.5	23 56.6 -51.1	133.9	23 14.9 -51.5	134.2	22 33.4 -51.6	134.7	22 04.4 -51.2	134.4	21 23.4 -51.6	134.7	21				
11	27 13.1 -48.4	132.4	26 32.5 -48.9	132.8	25 51.6 -49.4	133.1	25 10.5 -49.9	133.5	24 29.0 -50.3	133.8	23 47.4 -50.8	134.1	23 05.5 -51.2	134.4	22 23.4 -51.6	134.7	21 33.4 -51.6	135.0	21 13.8 -51.7	135.3	20 40.1 -51.8	135.8	13				
12	26 24.7 -48.6	133.0	25 43.6 -49.1	133.4	25 02.2 -49.5	133.7	24 20.6 -50.0	134.1	23 38.7 -50.4	134.4	22 56.6 -50.9	134.7	22 14.3 -51.3	135.0	21 23.0 -51.4	135.6	20 40.1 -51.8	135.8	13								
13	25 36.1 -48.8	133.7	24 54.5 -49.3	134.0	24 12.7 -49.8	134.4	23 30.6 -50.2	134.7	22 48.3 -50.6	135.0	22 05.7 -51.0	135.3	21 23.0 -51.4	135.6	20 31.6 -51.5	136.1	19 48.3 -51.9	136.4	19								
14	24 47.3 -48.9	134.3	24 05.2 -49.3	134.7	23 22.9 -49.8	135.0	22 40.4 -50.3	135.3	21 57.7 -50.7	135.6	21 14.7 -51.1	135.8	20 31.6 -51.5	136.1	19 48.3 -51.9	136.4	19										
15	23 58.4 -49.1	135.0	23 15.9 -49.6	135.3	22 33.1 -50.0	135.6	21 50.1 -50.4	135.9	21 07.0 -50.8	136.1	20 23.6 -51.2	136.4	19 40.1 -51.6	136.7	18 56.4 -52.0	136.9	18										
16	23 09.3 -49.2	135.6	22 26.3 -49.6	135.9	21 43.1 -50.1	136.2	20 59.7 -50.5	136.5	20 16.2 -51.0	136.7	19 32.4 -51.3	137.0	18 48.5 -51.8	137.2	18 04.4 -52.1	137.4	18										
17	22 20.1 -49.4	136.2	21 36.7 -49.8	136.5	20 53.0 -50.2	136.8	20 09.2 -50.6	137.0	19 25.2 -51.0	137.3	18 41.1 -51.5	137.5	17 56.7 -51.7	137.7	17 12.3 -52.2	137.9	17										
18	21 30.7 -49.5	136.8	20 46.9 -50.0	137.1	20 02.8 -50.3	137.4	19 18.6 -50.8	137.6	18 34.2 -51.1	137.8	17 49.6 -51.5	138.1	16 20.1 -52.2	138.3	16												
19	20 41.2 -49.6	137.4	19 56.9 -50.0	137.7	19 12.5 -50.5	137.9	18 27.8 -50.8	138.2	17 43.1 -51.3	138.4	16 58.1 -51.6	138.6	16 13.1 -52.0	138.8	15 27.9 -52.3	139.0	15										
20	19 51.6 -49.7	138.0	19 06.9 -50.2	138.3	18 22.0 -50.5	138.5	17 37.0 -50.9	138.7	16 51.8 -51.3	138.9	16 06.5 -51.6	139.1	15 21.1 -52.0	139.3	14 35.6 -52.4	139.5	14										
21	19 01.9 -49.9	138.6	18 16.7 -50.2	138.9	17 31.5 -50.7	139.1	16 46.1 -51.0	139.3	16 00.5 -51.3	139.5	15 14.9 -51.8	139.6	14 29.1 -52.1	139.8	13 43.2 -52.4	140.0	13										
22	18 12.0 -50.0	139.2	17 26.5 -50.4	139.4	16 40.8 -50.7	139.6	15 55.1 -51.1	139.8	15 09.2 -51.5	140.0	14 23.1 -51.8	140.2	13 37.0 -52.0	140.3	12 50.8 -52.5	140.5	12										
23	17 22.0 -50.0	139.8	16 36.1 -50.4	140.0	15 50.1 -50.8	140.2	15 04.0 -51.2	140.4	14 17.7 -51.5	140.5	13 31.3 -51.9	140.7	12 44.8 -52.2	140.8	11 58.3 -52.6	141.0	11										
24	16 32.0 -50.2	140.4	15 45.7 -50.5	140.6	14 59.3 -50.9	140.7	14 12.8 -51.3	140.9	13 26.2 -51.6	141.1	12 39.4 -51.9	141.2	11 52.6 -52.2	141.3	11 05.7 -52.6	141.5	11										
25	15 41.8 -50.2	141.0	14 55.2 -50.6	141.1	14 08.4 -51.0	141.3	13 21.5 -51.3	141.4	12 34.6 -51.7	141.6	11 47.5 -52.0	141.7	11 00.4 -52.4	141.8	10 13.1 -52.6	142.0	10										
26	14 51.6 -50.4	141.5	14 04.6 -50.7	141.7	13 17.4 -51.0	141.8	12 30.2 -51.4	142.0	11 42.9 -51.7	142.1	10 55.5 -52.0	142.2	10 08.0 -52.3	142.3	9 20.5 -52.7	142.4	9										
27	14 01.2 -50.4	142.1	13 13.9 -50.8	142.2	12 26.4 -51.1	142.4	11 38.8 -51.4	142.5	10 51.2 -51.8	142.6	10 03.5 -52.1	142.7	9 15.7 -52.4	142.8	8 27.8 -52.7	142.9	8										
28	13 10.8 -50.4	142.6	12 23.1 -50.8	142.8	11 35.3 -51.2	142.9	10 47.4 -51.5	143.0	9 59.4 -51.8	143.1	9 11.4 -52.1	143.2	8 23.3 -52.4	143.3	7 35.1 -52.7	143.4	7										
29	12 20.4 -50.6	143.2	11 32.3 -50.8	143.3	10 44.1 -51.2	143.4	9 55.9 -51.5	143.5	8 07.6 -51.8	143.6	8 19.3 -52.3	143.7	7 30.9 -52.5	143.8	6 42.4 -52.8	143.9	6										
30	11 29.8 -50.6	143.7	10 41.4 -50.9	143.9	9 52.9 -51.2	144.0	9 04.4 -51.6	144.1	8 15.8 -51.9	144.2	7 27.1 -52.2	144.2	6 38.4 -52.5	144.3	5 49.6 -52.8	144.4	5										
31	10 39.2 -50.6	144.3	9 50.5 -51.0	144.4	9 01.7 -51.4	144.5	8 12.8 -51.6	144.6	7 23.9 -52.0	144.7	6 34.9 -52.5	144.8	5 45.9 -52.5	144.9	4 56.8 -52.8	144.9	4										
32	9 48.6 -50.7	144.8	8 59.5 -51.1	144.9	8 10.3 -51.3	145.0	7 21.2 -51.7	145.1	6 31.9 -51.9	145.2	5 42.7 -52.3	145.2	4 53.4 -52.6	145.3	3 04.0 -52.8	145.3	3										
33	8 57.9 -50.8	145.4	8 08.4 -51.0	145.5	7 19.0 -51.4	145.5	6 29.5 -51.7	145.6	5 40.0 -52.0	145.7	4 50.4 -52.3	145.7	4 00.8 -52.5	145.8	3 11.2 -52.8	145.8	3 34.8 -52.9	146.3	3 28 18.4 -52.9	146.3	34						
34	8 07.1 -50.8	145.9	7 17.4 -51.1	146.0	6 27.6 -51.4	146.1	5 37.8 -51.7	146.1	4 48.0 -52.0	146.2	3 58.1 -52.3	146.2	2 21.1 -52.6	146.7	1 13.1 -52.8	146.8	1 32.7 -52.9	147.2	1 30.2 -52.7	147.2	36						
35	7 16.3 -50.8	146.5	6 26.3 -51.2	146.5	5 36.2 -51.4	146.6	4 46.1 -51.7	146.6	3 56.0 -52.0	146.7	2 08.3 -52.1	147.2	1 23.1 -52.3	147.2	0 20.2 -52.9	147.7	0 32.7 -52.9	147.7	0 32.7 -52.9	147.7	37						
36	6 25.5 -50.9	147.0	5 35.1 -51.2	147.0	4 44.8 -51.5	147.1	3 54.4 -51.8	147.1	2 08.3 -52.1	147.2	1 23.1 -52.3	147.7	0 30.5 -52.6	147.7	0 20												

43°, 317° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.
	Hc	d	Z																						
0	35 11.5	+45.0	123.4	34 38.2	+45.7	124.0	34 04.4	+46.4	124.6	33 30.1	+47.1	125.1	32 55.3	+47.7	125.7	32 20.1	+48.4	126.2	31 44.5	+48.9	126.7	31 08.5	+49.4	127.2	0
1	35 56.5	+44.7	122.6	35 23.9	+45.5	123.2	34 50.8	+46.1	123.8	34 17.2	+46.8	124.4	33 43.0	+47.5	124.9	33 08.5	+48.0	125.5	32 33.4	+48.7	126.0	31 57.9	+49.3	126.5	1
2	36 41.2	+44.4	121.8	36 09.4	+45.1	122.4	35 36.9	+45.8	123.0	35 04.0	+46.5	123.6	34 30.5	+47.2	124.2	33 56.5	+47.8	124.8	33 22.1	+48.4	125.3	32 47.2	+49.0	125.8	2
3	37 25.6	+44.0	120.9	36 54.5	+44.7	121.6	36 22.7	+45.5	122.2	35 50.5	+46.2	122.8	35 17.7	+46.8	123.4	34 44.3	+46.7	124.0	34 10.5	+48.2	124.6	33 36.2	+48.8	125.1	3
4	38 09.6	+43.6	120.1	37 39.2	+44.4	120.8	37 08.2	+45.2	121.4	36 36.7	+45.8	122.1	36 04.5	+46.6	122.7	35 31.9	+47.3	123.3	34 58.7	+47.9	123.9	34 25.0	+48.6	124.4	4
5	38 53.2	+43.2	119.2	38 23.6	+44.0	119.9	37 53.4	+44.8	120.6	37 22.5	+45.6	121.2	36 51.1	+46.3	121.9	36 19.2	+46.8	122.5	35 46.6	+47.7	123.1	35 13.6	+48.3	123.7	5
6	39 36.4	+42.8	118.3	39 07.6	+43.6	119.0	38 38.2	+44.4	119.7	38 08.1	+45.2	120.4	37 37.4	+45.9	121.1	37 06.1	+46.7	121.7	36 34.3	+47.3	122.4	36 01.9	+48.0	123.0	6
7	40 19.2	+42.3	117.4	39 51.2	+43.2	118.1	39 22.6	+44.0	118.9	38 53.3	+44.8	119.6	38 23.3	+45.6	120.3	37 52.8	+46.3	121.0	37 21.6	+47.1	121.6	36 49.9	+47.7	122.3	7
8	41 01.5	+41.9	116.5	40 34.4	+42.8	117.2	40 06.6	+43.6	118.0	39 38.1	+44.4	118.7	39 08.9	+45.3	119.4	38 39.1	+46.0	120.1	38 08.7	+46.7	120.8	37 37.6	+47.5	121.5	8
9	41 43.4	+41.4	115.5	41 17.2	+42.3	116.3	40 50.2	+43.2	117.1	40 22.5	+44.1	117.8	39 54.2	+44.8	118.6	39 25.1	+45.7	119.3	38 55.4	+46.4	120.0	38 25.1	+47.1	120.7	9
10	42 24.8	+40.9	114.5	41 59.5	+41.8	115.4	41 33.4	+42.7	116.2	41 06.6	+43.6	116.9	40 39.0	+44.5	117.7	40 10.8	+45.2	118.5	39 41.8	+46.1	119.2	39 12.2	+46.8	119.9	10
11	43 05.7	+40.3	113.5	42 41.3	+41.3	114.4	42 16.1	+42.3	115.2	41 50.2	+43.1	116.0	41 23.5	+44.0	116.8	40 56.0	+44.9	117.6	40 27.9	+45.6	118.4	39 59.0	+46.5	119.1	11
12	43 46.0	+39.8	112.5	43 22.6	+40.8	113.4	42 58.4	+41.7	114.3	42 33.3	+42.7	115.1	42 07.5	+43.6	115.9	41 40.9	+44.4	116.7	41 13.5	+45.3	117.5	40 45.5	+46.0	118.3	12
13	44 25.8	+39.2	111.5	44 03.4	+40.2	112.4	43 40.1	+41.2	113.3	43 16.0	+42.2	114.1	42 51.1	+43.1	115.0	42 25.3	+44.0	115.8	41 58.8	+44.9	116.6	41 31.5	+45.7	117.4	13
14	45 05.0	+38.6	110.4	44 43.6	+39.7	111.3	44 21.3	+40.7	112.3	43 58.2	+41.7	113.2	43 34.2	+42.6	114.0	43 09.3	+43.6	114.9	42 43.7	+44.4	115.7	42 17.2	+45.3	116.6	14
15	45 43.6	+38.0	109.3	45 23.3	+39.1	110.3	45 02.0	+40.1	111.2	44 39.9	+41.1	112.1	44 16.8	+42.1	113.1	43 52.9	+43.0	113.9	43 28.1	+44.0	114.8	43 02.5	+44.9	115.7	15
16	46 21.6	+37.3	108.2	46 02.4	+38.4	109.2	45 42.1	+39.6	110.2	45 21.0	+40.6	111.1	44 58.9	+41.6	112.1	44 35.9	+42.6	113.0	44 12.1	+43.5	113.9	43 47.4	+44.4	114.7	16
17	46 58.9	+36.6	107.1	46 40.8	+37.7	108.1	46 21.7	+38.8	109.1	46 01.6	+39.9	110.1	45 40.5	+41.0	111.0	45 18.5	+42.0	112.0	44 55.6	+43.0	112.9	44 31.8	+44.0	113.8	17
18	47 35.5	+35.5	105.9	47 18.5	+37.1	106.9	47 00.5	+38.3	108.0	46 41.5	+39.4	109.0	46 21.5	+40.4	110.0	46 00.5	+41.5	111.0	45 38.6	+42.5	111.9	45 15.8	+43.4	112.9	18
19	48 11.4	+35.1	104.7	47 55.6	+36.4	105.8	47 38.8	+37.5	106.8	47 20.9	+38.7	107.9	47 01.9	+39.8	108.9	46 42.0	+40.8	109.9	46 21.1	+41.9	110.9	45 59.2	+42.9	111.9	19
20	48 46.5	+34.3	103.5	48 32.0	+35.5	104.6	48 16.3	+36.8	105.7	47 59.6	+38.0	106.7	47 41.7	+39.2	107.8	47 22.9	+40.3	108.8	47 03.0	+41.4	109.9	46 42.1	+42.4	110.9	20
21	49 20.8	+33.5	102.2	49 07.5	+34.8	103.4	48 53.1	+36.1	104.5	48 37.6	+37.2	105.6	48 20.9	+38.5	106.7	48 03.2	+39.6	107.7	47 44.4	+40.7	108.8	47 24.5	+41.8	109.8	21
22	49 54.3	+32.6	100.9	49 42.3	+34.0	102.1	49 29.2	+35.2	103.3	49 14.8	+36.5	104.4	48 59.4	+37.7	105.5	48 42.8	+38.9	106.6	48 25.1	+40.1	107.7	48 06.3	+41.2	108.7	22
23	50 26.9	+31.8	99.6	50 16.3	+33.1	100.8	50 04.4	+34.4	102.0	49 51.3	+35.8	103.2	49 37.1	+37.0	104.3	49 21.7	+38.2	105.4	49 05.2	+39.4	106.6	48 47.5	+40.6	107.6	23
24	50 58.7	+30.7	98.3	50 49.4	+32.2	99.5	50 38.8	+33.6	100.7	50 27.1	+34.9	101.9	50 14.1	+36.2	103.1	49 59.9	+37.5	104.2	49 44.6	+38.7	105.4	49 28.1	+39.9	106.5	24
25	51 29.4	+29.8	96.9	51 21.6	+31.2	98.2	51 12.4	+32.7	99.4	51 02.0	+34.0	100.6	50 50.3	+35.4	101.8	50 37.4	+36.7	103.0	50 23.3	+37.9	104.2	50 08.0	+39.1	105.4	25
26	51 59.2	+28.4	95.5	51 52.8	+30.3	96.8	51 45.1	+31.7	98.1	51 36.0	+33.1	99.3	51 25.7	+35.4	100.5	51 14.1	+35.0	101.8	51 01.2	+37.2	103.0	50 47.1	+38.4	104.2	26
27	52 28.0	+27.8	94.1	52 23.1	+29.2	95.4	52 16.8	+30.7	96.7	52 09.1	+32.2	98.0	52 00.2	+33.6	99.2	51 49.9	+35.0	100.5	51 38.4	+36.3	101.7	51 25.5	+37.7	103.0	27
28	52 55.8	+26.6	92.6	52 52.3	+28.2	93.9	52 47.5	+29.7	95.3	52 41.3	+31.2	96.6	52 33.8	+32.6	97.9	52 24.9	+34.1	99.2	52 14.7	+35.4	100.4	52 03.2	+36.8	101.7	28
29	53 22.4	+25.4	91.1	53 20.5	+27.0	92.5	53 17.2	+28.6	93.8	53 12.5	+30.2	95.2	53 06.4	+31.7	96.5	52 59.0	+33.1	97.8	52 50.1	+34.6	99.1	52 40.0	+35.9	100.4	29
30	53 47.8	+24.3	89.6	53 47.5	+26.0	91.0	53 45.8	+27.5	92.3	53 42.7	+29.0	93.7	53 38.1	+30.6	95.1	53 32.1	+32.1	96.4	53 24.7	+33.6	97.7	53 15.9	+35.1	99.1	30
31	54 12.1	+23.1	88.1	54 13.5	+24.7	89.4	54 13.3	+26.4	90.8	54 11.7	+28.0	92.0	54 08.7	+29.5	93.6	54 04.2	+31.1	95.0	53 58.3	+32.6	96.3	53 51.0	+34.0	97.7	31
32	54 35.2	+21.8	86.5	54 38.2	+23.4	87.9	54 39.7	+25.1	89.3	54 39.7	+26.8	90.7	54 38.2	+28.4	92.1	54 35.3	+30.0	93.5	54 30.9	+31.5	94.9	54 25.0	+33.1	96.3	32
33	54 57.0	+20.5	84.8	55 01.6	+22.2	86.3	55 04.8	+23.9	87.7	55 06.5	+25.5	89.1	55 06.6	+27.2	90.6	55 05.3	+28.8	92.0	55 02.4	+30.5	93.4	54 58.1	+32.0	94.9	33
34	55 17.5	+19.1	83.2	55 18.0	-12.4	84.6	55 40.3	+7.6	86.0	55 02.0	+9.5	86.6	55 22.1	+11.4	71.2	55 40.7	+13.3	72.8	55 57.6	+15.3	74.4	55			
35	55 44.7	+19.5	81.5	55 51.3	+21.2	84.4	55 56.3	+23.0	85.9	55 59.8	+24.7	87.4	56 01.8	+26.4	88.9	56 02.2	+28.1	89.0	56 01.0	+29.7	91.8	55			
36	55 54.4	+16.3	79.8	56 04.2	+18.1	81.3	56 12.5	+19.9	82.8	56 19.3	+21.7	84.3	56 24.5	+23.4	85.8	56 28.2	+25.1	87.3	56 30.3	+26.8	88.8	56 30.7	+28.6	90.3	

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 43°, 317°

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z			
0	35 11.5 -45.4	123.4	34 38.2 -46.0	124.0	34 04.4 -46.7	124.6	33 30.1 -47.3	125.1	32 55.3 -47.9	125.7	32 20.1 -48.5	126.2	31 44.5 -49.1	126.7	31 08.5 -49.7	127.2	30 55.4 -49.3	127.4	30 18.8 -49.9	127.8	29 28.9 -50.0	128.5	29 16.6 -49.7	128.7	28 38.9 -50.2	129.1	0
1	34 26.1 -45.6	124.2	33 52.2 -46.4	124.8	33 17.7 -47.0	125.3	32 42.8 -47.6	125.9	32 07.4 -48.2	126.4	31 31.6 -48.8	126.9	30 55.4 -49.3	127.4	30 06.1 -49.5	128.0	29 28.9 -50.0	128.5	29 16.6 -49.7	128.7	28 38.9 -50.2	129.1	27 48.7 -50.4	129.7	4		
2	33 40.5 -46.0	125.0	33 05.8 -46.6	125.6	32 30.7 -47.2	126.1	31 55.2 -47.9	126.6	31 19.2 -48.4	127.1	30 42.8 -48.9	127.6	30 06.1 -49.5	128.0	29 28.9 -50.0	128.5	29 16.6 -49.7	128.7	28 38.9 -50.2	129.1	27 48.7 -50.4	129.7	3				
3	32 54.5 -46.2	125.8	32 19.2 -46.8	126.3	31 43.5 -47.5	126.8	31 07.3 -48.0	127.3	30 30.8 -48.6	127.8	29 53.9 -49.2	128.2	29 15.6 -49.7	128.9	28 26.9 -49.9	129.3	27 48.7 -50.4	129.7	26 58.3 -50.5	130.3	25 36.6 -50.2	130.6	5				
4	32 08.3 -46.5	126.5	31 32.4 -47.1	127.0	30 56.0 -47.7	127.5	30 19.3 -48.3	128.0	29 42.2 -48.9	128.4	29 04.7 -49.4	128.9	28 26.9 -49.9	129.3	27 48.7 -50.4	129.7	26 58.3 -50.5	130.3	25 36.6 -50.2	130.6	6						
5	31 21.8 -46.8	127.3	30 45.3 -47.4	127.8	30 08.3 -47.9	128.2	29 31.0 -48.5	128.7	28 53.3 -49.0	129.1	28 15.3 -49.5	129.5	27 37.0 -50.2	129.9	26 58.3 -50.5	130.3	25 36.6 -50.2	130.6	24 43.6 -50.7	131.7	23 35.3 -51.1	132.7	7				
6	30 35.0 -46.9	128.0	29 57.9 -47.6	128.5	29 20.4 -48.1	128.9	28 42.5 -48.6	129.3	28 04.3 -49.2	129.8	27 25.8 -49.7	130.2	26 46.9 -50.2	130.6	26 07.8 -50.7	130.9	25 56.7 -50.3	131.2	25 17.1 -50.8	131.5	24 26.3 -51.0	132.1	8				
7	29 48.1 -47.3	128.7	29 10.3 -47.8	129.2	28 32.3 -48.4	129.6	27 53.9 -48.9	130.0	27 15.1 -49.4	130.4	26 36.1 -49.9	130.8	25 04.0 -50.1	131.0	25 46.2 -50.3	131.4	25 06.4 -50.5	131.8	24 36.0 -50.7	132.0	23 35.3 -51.1	132.7	9				
8	29 00.8 -47.4	129.4	28 22.5 -47.9	129.9	27 43.9 -48.5	130.3	27 05.0 -49.1	130.7	26 25.7 -49.5	131.0	25 46.2 -50.3	131.4	25 15.6 -50.7	131.7	24 36.2 -50.7	132.0	23 35.3 -51.1	132.7	22 44.2 -51.2	133.3	10						
9	28 13.4 -47.7	130.1	27 34.6 -48.2	130.5	26 55.4 -48.7	130.9	26 15.9 -49.2	131.3	25 36.2 -49.7	131.7	24 56.2 -50.2	132.0	24 15.9 -50.7	132.4	23 35.3 -51.1	132.7	22 44.2 -51.2	133.3	21 53.0 -51.3	133.8	11						
10	27 25.7 -47.8	130.8	26 46.4 -48.4	131.2	26 06.7 -48.9	131.6	25 26.7 -49.4	131.9	24 46.5 -49.9	132.3	24 06.0 -50.3	132.6	23 25.2 -50.4	133.0	22 44.2 -51.2	133.3	21 43.6 -51.4	133.9	20 52.6 -51.6	134.4	19 31.3 -51.6	135.0	14				
11	26 37.9 -48.0	131.5	25 58.0 -48.6	131.9	25 17.8 -49.0	132.2	24 37.3 -49.5	132.6	23 56.6 -50.0	132.9	23 15.7 -50.5	133.2	22 34.4 -50.8	133.5	21 53.0 -51.3	133.8	20 52.6 -51.6	134.4	19 31.3 -51.6	135.0	18 27.1 -51.7	136.0	15				
12	25 49.9 -48.3	132.2	25 09.4 -48.7	132.5	24 28.8 -49.3	132.9	23 47.8 -49.7	133.2	23 06.6 -50.1	133.5	22 25.2 -50.6	133.8	21 43.6 -51.0	134.1	20 52.6 -51.2	134.7	19 31.3 -51.6	135.0	18 27.1 -51.7	136.0	17 35.4 -51.8	136.5	16				
13	25 01.6 -48.4	132.8	24 20.7 -48.9	133.2	23 39.5 -49.3	133.5	22 58.1 -49.8	133.8	22 16.5 -50.3	134.1	21 34.6 -50.7	134.4	20 52.6 -51.2	134.7	19 31.3 -51.6	135.0	18 27.1 -51.7	136.0	17 35.4 -51.8	136.5	16						
14	24 13.2 -48.5	133.5	23 31.8 -49.0	133.8	22 50.2 -49.5	134.1	22 08.3 -49.9	134.4	21 26.2 -50.4	134.7	20 43.9 -50.8	135.0	20 01.4 -51.2	135.2	19 18.7 -51.6	135.5	18 27.1 -51.7	136.0	17 35.4 -51.8	136.5	16						
15	23 24.7 -48.7	134.1	22 42.8 -49.2	134.4	22 00.7 -49.6	134.7	21 18.4 -50.1	135.0	20 35.8 -50.5	135.3	19 53.1 -50.9	135.5	19 10.2 -51.3	135.8	18 27.1 -51.7	136.0	17 35.4 -51.8	136.5	16								
16	22 36.0 -48.9	134.8	21 53.6 -49.3	135.0	21 11.1 -49.8	135.3	20 28.3 -50.2	135.6	19 45.3 -50.6	135.8	19 02.2 -51.0	136.1	18 18.9 -51.4	136.3	17 35.4 -51.8	136.5	16 43.6 -51.9	136.8	15 52.6 -52.2	137.0	14						
17	21 47.1 -49.0	135.4	21 04.3 -49.4	135.7	20 21.3 -49.9	135.9	19 38.1 -50.3	136.2	18 54.7 -50.7	136.4	18 11.2 -51.1	136.6	17 27.5 -51.5	136.9	16 43.6 -51.9	137.1	15 51.7 -51.9	137.4	14 32.2 -52.4	137.6	13						
18	20 58.1 -49.1	136.0	20 14.9 -49.6	136.3	19 31.4 -50.0	136.5	18 47.8 -50.4	136.8	18 04.0 -50.8	137.0	17 20.1 -51.2	137.2	16 36.0 -51.6	137.4	15 51.7 -51.9	137.6	14 32.2 -52.4	137.8	13 23.5 -52.2	137.9	12						
19	20 09.0 -49.3	136.6	19 25.3 -49.7	136.9	18 41.4 -50.1	137.1	17 57.4 -50.5	137.5	16 13.2 -50.9	137.7	15 44.4 -51.7	137.9	14 59.8 -52.0	138.1	13 23.5 -52.2	138.3	12 33.9 -52.3	138.5	11 31.3 -52.2	138.7	10						
20	19 19.7 -49.3	137.2	18 35.6 -49.8	137.5	17 51.3 -50.2	137.7	17 06.9 -50.6	137.9	16 22.3 -51.0	138.1	15 37.6 -51.4	138.3	14 52.7 -51.7	138.5	13 07.8 -52.1	138.6	12 23.5 -52.2	138.8	11 31.3 -52.2	139.0	10						
21	18 30.4 -49.5	137.8	17 45.8 -49.9	138.0	17 01.1 -50.3	138.3	16 16.3 -50.7	138.5	15 31.3 -51.1	138.6	14 46.2 -51.4	138.8	14 01.0 -51.8	139.0	13 15.7 -52.2	139.1	12 23.5 -52.2	139.3	11 31.3 -52.2	139.5	10						
22	17 40.9 -49.6	138.4	16 55.9 -50.0	138.6	16 10.8 -50.4	138.8	15 25.6 -50.8	139.0	14 40.2 -51.1	139.2	13 54.8 -51.5	139.3	13 09.2 -51.9	139.5	12 23.5 -52.2	139.7	11 31.3 -52.2	139.9	10 39.1 -52.3	140.7	9						
23	16 51.3 -49.7	139.0	16 05.9 -50.1	139.2	15 20.4 -50.4	139.4	14 34.8 -50.8	139.6	13 49.1 -51.2	139.7	13 03.3 -51.6	139.9	12 17.3 -51.9	140.0	11 31.3 -52.2	140.2	10 39.1 -52.3	140.7	9 27.1 -51.7	140.9	8						
24	16 01.6 -49.8	139.6	15 11.4 -50.5	140.2	11 07.3 -50.8	142.1	10 19.9 -51.1	142.3	9 32.4 -51.5	142.4	8 44.9 -51.8	142.5	7 57.3 -52.2	142.6	7 09.6 -52.4	142.6	6 40.4 -52.1	142.7	5 15.1 -52.1	142.9	4						
25	15 11.8 -49.9	140.2	14 25.6 -50.2	140.3	13 39.4 -50.6	140.5	12 53.1 -51.0	140.6	12 06.6 -51.3	140.8	11 20.1 -51.7	140.9	10 33.5 -52.1	141.0	9 46.8 -52.4	141.2	8 32.2 -52.4	141.4	7 20.8 -52.5	141.6	6 30.6 -52.5	141.8	5				
26	14 21.9 -50.0	140.7	13 35.4 -50.3	140.9	12 48.8 -50.7	141.1	12 02.1 -51.1	141.2	11 15.3 -51.4	141.3	10 28.4 -51.7	141.4	9 41.4 -52.0	141.5	8 02.0 -52.4	142.1	7 27.1 -52.4	142.7	6 32.2 -52.5	142.9	5 15.1 -52.5	143.1	4				
27	13 31.9 -50.0	141.3	12 45.1 -50.5	141.5	11 58.1 -50.8	141.6	11 11.0 -51.1	141.7	10 23.9 -51.5	141.8	9 36.7 -51.8	142.0	8 49.4 -52.1	142.1	7 09.6 -52.4	142.2	6 32.2 -52.5	142.4	5 14.1 -52.5	142.6	4 47.1 -52.5	142.8	3				
28	12 41.9 -50.1	141.9	11 54.7 -50.5	142.0	10 07.3 -50.8	142.1	9 10.9 -51.1	142.2	8 32.4 -51.3	142.3	7 40.2 -51.7	142.5	6 33.5 -52.0	142.6	5 14.4 -52.2	142.8	4 42.9 -52.4	143.0	3 33.5 -52.5	143.2	2 28.2 -52.6	143.4	1				
29	11 51.8 -50.2	142.4	10 04.2 -50.5	142.6	9 13.5 +51.1	29.9	8 29.8 -51.2	142.8	7 49.4 -51.6	143.4	6 31.0 +51.7	143.9	5 09.3 +51.9	144.0	4 32.2 -52.5	144.1	3 32.2 -52.5	144.3	2 20.8 +52.5	144.6	1 02.0 -52.5	146.0	0 09.5 -52.6	146.5	36		
30	6 49.9 -50.4	145.8	6 00.3 -50.8	145.8	5 10.7 -51.1	145.9	4 21.0 -51.4	145.9	3 50.8 +51.6	146.0	2 41.5 -52.0	146.0	1 51.8 -52.3	146.0	0 0.5 -52.5	147.0	0 0.44.5 -52.5	147.0	0 45.1 +52.2	147.5	0 43.1 +52.6	148.0	37				
31	5 59.5 -50.5	146.3	5 09.5 -50.8	146.4	4 19.6 -51.2	146.4	3 29.6 -51.4	146.4	2 30.7 +51.7	146.5	1 49.5 -52.0	146.5	0 59.5 -52.3	146.5	0 0.5 -52.5	147.0	0 0.44.5 -52.5	147.0	0 45.1 +52.2	147.5	0 43.7 +52.5	148.0	38				
32	5 09.0 -50.6	146.8	4 18.7 -50.8	146.9																							

44°, 316° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	38°			39°			40°			41°			42°			43°			44°			45°			Dec.
Dec.	Hc	d	Z	Dec.																					
0	34 31.8	+44.7	122.5	33 59.3	+45.4	123.1	33 26.3	+46.1	123.6	32 52.8	+46.8	124.2	32 18.9	+47.4	124.7	31 44.5	+48.0	125.2	31 09.7	+48.6	125.7	30 34.4	+49.2	126.2	0
1	35 16.5	+44.4	121.7	34 44.7	+45.1	122.3	34 12.4	+45.8	122.9	33 39.6	+46.4	123.4	33 06.3	+47.1	124.0	32 32.5	+47.8	124.5	31 58.3	+48.3	125.0	31 23.6	+49.0	125.5	1
2	36 00.9	+44.0	120.9	35 29.8	+44.7	121.5	34 58.2	+45.5	122.1	34 26.0	+46.2	122.7	33 53.4	+46.8	123.2	33 20.3	+47.5	123.8	32 46.6	+48.2	124.3	32 12.6	+48.7	124.9	2
3	36 44.9	+43.6	120.0	36 14.5	+44.4	120.7	35 43.7	+45.1	121.3	35 12.2	+45.9	121.9	34 40.2	+46.6	122.5	34 07.8	+47.2	123.1	33 34.8	+47.9	123.6	33 01.3	+48.5	124.2	3
4	37 28.5	+43.2	119.2	36 58.9	+44.1	119.8	36 28.8	+44.8	120.5	35 58.1	+45.5	121.1	35 26.8	+46.3	121.7	34 55.0	+47.0	122.3	34 22.7	+47.6	122.9	33 49.8	+48.3	123.5	4
5	38 11.7	+42.9	118.3	37 43.0	+43.6	119.0	37 13.6	+44.5	119.6	36 43.6	+45.2	120.3	36 13.1	+45.9	120.9	35 42.0	+46.6	121.6	35 10.3	+47.3	122.2	34 38.1	+48.0	122.7	5
6	38 54.6	+42.4	117.4	38 26.6	+43.3	118.1	37 58.1	+44.0	118.8	37 28.8	+44.9	119.5	36 59.0	+45.6	120.1	36 28.6	+46.4	120.8	35 57.6	+47.1	121.4	35 26.1	+47.7	122.0	6
7	39 37.0	+42.0	116.5	39 09.9	+42.9	117.2	38 42.1	+43.7	117.9	38 13.7	+44.5	118.6	37 44.6	+45.3	119.3	37 15.0	+46.0	120.0	36 44.7	+46.7	120.6	36 13.8	+47.5	121.3	7
8	40 19.0	+41.5	115.6	39 52.8	+42.4	116.3	39 25.8	+43.3	117.1	38 58.2	+44.1	117.8	38 29.9	+44.9	118.5	38 01.0	+45.7	119.2	37 31.4	+46.5	119.8	37 01.3	+47.1	120.5	8
9	41 00.5	+41.1	114.6	40 35.2	+42.0	115.4	40 09.1	+42.9	116.1	39 42.3	+43.7	116.9	39 14.8	+44.6	117.6	38 46.7	+45.3	118.3	38 17.9	+46.1	119.0	37 48.4	+46.9	119.7	9
10	41 41.6	+40.6	113.6	41 17.2	+41.5	114.4	40 52.0	+42.4	115.2	40 26.0	+43.3	116.0	39 59.4	+44.1	116.8	39 32.0	+45.0	117.5	39 04.0	+45.7	118.2	38 35.3	+46.5	118.9	10
11	42 22.2	+40.0	112.6	41 58.7	+41.0	113.5	41 34.4	+41.9	114.3	41 09.3	+42.8	115.1	40 43.5	+43.7	115.9	40 17.0	+44.5	116.6	39 49.7	+45.4	117.4	39 21.8	+46.1	118.1	11
12	43 02.2	+39.5	111.6	42 39.7	+40.4	112.5	42 16.3	+41.4	113.3	41 52.1	+42.4	114.2	41 27.2	+43.3	115.0	41 01.5	+44.2	115.8	40 35.1	+45.0	116.5	40 07.9	+45.8	117.3	12
13	43 41.7	+38.9	110.6	43 20.1	+40.0	111.5	42 57.7	+41.0	112.3	42 34.5	+41.9	113.2	42 10.5	+42.8	114.0	41 45.7	+43.7	114.9	41 20.1	+44.5	115.7	40 53.7	+45.4	116.4	13
14	44 20.6	+38.3	109.5	44 00.1	+39.3	110.4	43 38.7	+40.4	111.3	43 16.4	+41.4	112.2	42 53.3	+42.3	113.1	42 29.4	+43.2	113.9	42 04.6	+44.2	114.8	41 39.1	+45.0	115.6	14
15	44 58.9	+37.7	108.4	44 39.4	+38.8	109.4	44 19.1	+39.8	110.3	43 57.8	+40.8	111.2	43 12.6	+41.9	112.1	43 12.6	+42.8	113.0	42 48.8	+43.7	113.8	42 24.1	+44.6	114.7	15
16	45 36.6	+37.0	107.3	45 18.2	+38.1	108.3	44 58.9	+39.2	109.3	44 38.6	+40.3	110.2	44 17.5	+41.3	111.1	43 55.4	+42.3	112.0	43 32.5	+43.2	112.9	43 08.7	+44.2	113.8	16
17	46 13.6	+36.3	106.2	45 56.3	+37.5	107.2	45 38.1	+38.6	108.2	45 18.9	+39.7	109.1	44 58.8	+40.7	110.1	44 37.7	+41.7	111.0	44 15.7	+42.7	111.9	43 52.9	+43.6	112.8	17
18	46 49.9	+35.7	105.1	46 33.8	+36.8	106.1	46 16.7	+38.0	107.1	45 58.6	+39.1	108.1	45 39.5	+40.1	109.1	45 19.4	+41.2	110.0	44 58.4	+42.2	111.0	44 36.5	+43.2	111.9	18
19	47 25.6	+34.2	103.9	47 10.6	+36.1	104.9	46 54.7	+37.2	106.0	46 37.7	+38.4	107.0	46 19.6	+39.6	108.0	46 00.6	+40.6	109.5	45 40.6	+41.7	109.9	45 19.7	+42.7	110.9	19
20	48 00.4	+34.1	102.7	47 46.7	+35.4	103.7	47 31.9	+36.6	104.8	47 16.1	+37.7	105.9	46 59.2	+38.9	106.9	46 41.2	+40.0	107.9	46 22.3	+41.1	108.9	46 02.4	+42.1	109.9	20
21	48 34.5	+33.3	101.4	48 22.1	+34.6	102.5	48 08.5	+35.8	103.6	47 53.8	+37.1	104.7	47 38.1	+38.2	105.8	47 21.2	+39.4	106.8	47 03.4	+40.5	107.8	46 44.5	+41.5	108.9	21
22	49 07.8	+32.5	100.2	48 56.7	+33.7	101.3	48 44.3	+35.1	102.4	48 30.9	+36.3	103.5	48 16.3	+37.5	104.6	48 00.6	+38.7	105.7	47 43.9	+39.8	106.7	47 26.0	+41.0	107.8	22
23	49 40.3	+31.5	98.9	49 30.4	+32.9	100.0	49 19.4	+34.2	101.2	49 07.2	+35.5	102.3	48 53.8	+36.8	103.4	48 39.3	+38.0	104.5	48 23.7	+39.2	105.6	48 07.0	+40.3	106.7	23
24	50 11.8	+30.7	97.5	50 03.3	+32.1	98.7	49 53.6	+33.4	99.9	49 42.7	+34.7	101.1	49 30.6	+36.0	102.2	49 17.3	+37.3	103.4	49 02.9	+38.4	104.5	48 47.3	+39.7	105.6	24
25	50 42.5	+29.7	96.2	50 35.4	+31.1	97.4	50 27.0	+32.5	98.6	50 17.4	+33.9	99.8	50 06.6	+35.2	101.0	49 54.6	+36.4	102.1	49 41.3	+37.8	103.3	49 27.0	+38.9	104.4	25
26	51 12.2	+28.7	94.8	51 06.5	+30.1	96.1	50 59.5	+31.6	97.3	50 51.3	+32.9	98.5	50 41.8	+34.3	99.7	50 31.0	+35.7	100.9	50 19.1	+36.9	102.1	50 05.9	+38.2	103.3	26
27	51 40.9	+27.6	93.4	51 36.6	+29.2	94.7	51 31.1	+30.6	95.9	51 24.2	+32.1	97.2	51 16.1	+33.5	98.4	51 06.7	+34.8	99.6	50 56.0	+36.2	100.9	50 44.1	+37.5	102.1	27
28	52 08.5	+26.6	92.0	52 05.8	+28.1	93.3	52 01.7	+29.6	94.5	51 56.3	+31.1	95.8	51 49.6	+32.5	97.1	51 41.5	+33.9	98.3	51 32.2	+35.3	99.6	51 21.6	+36.6	100.8	28
29	52 35.1	+25.5	90.5	52 33.9	+27.0	91.8	52 31.3	+28.6	93.1	52 27.4	+30.0	94.4	52 22.1	+31.5	95.7	52 15.4	+33.0	97.0	52 07.5	+34.4	98.3	51 58.2	+35.8	99.5	29
30	53 00.6	+24.3	89.0	53 00.9	+25.9	90.3	52 59.9	+27.5	91.7	52 57.4	+29.1	93.0	52 53.6	+30.6	94.3	52 48.4	+32.1	95.6	52 41.9	+33.5	96.9	52 34.0	+34.9	98.2	30
31	53 24.9	+23.1	87.5	53 26.8	+24.8	88.8	53 27.4	+26.3	90.2	53 26.5	+27.9	91.5	53 24.2	+29.4	92.9	53 20.5	+31.0	94.2	53 15.4	+32.5	95.5	53 08.9	+33.9	96.9	31
32	53 48.0	+21.9	85.9	53 51.6	+23.5	87.3	53 53.7	+25.2	88.7	53 54.4	+26.8	90.0	53 53.6	+28.4	91.4	53 51.9	+29.9	92.8	53 47.9	+31.4	94.1	53 42.8	+33.0	95.5	32
33	54 09.9	+20.7	84.3	54 15.1	+22.3	85.7	54 18.9	+23.9	87.1	54 21.2	+25.6	88.5	54 22.0	+27.3	89.9	54 21.4	+28.8	91.3	54 19.3	+30.4	92.7	54 15.8	+31.9	94.1	33
34	54 30.6	+19.3	82.7	57 10.3	+4.7	65.0	57 35.0	+6.4	66.4	57 58.3	+8.2	67.8	58 20.2	+10.1	69.3	58 40.6	+11.9	70.9	58 59.5	+13.8	72.5	59 16.8	+15.6	74.1	45
35	54 49.9	+18.0	81.1	55 18.2	+18.3	80.8	55 27.0	+20.0	82.3	55 34.3	+21.8	83.7	55 40.1	+23.5	85.2	55 44.4	+25.2	86.6	55 47.1	+26.9	88.1	55 48.3	+28.6	89.6	36
36	56 25.8	+7.7	69.0	56 46.6	+9.5	70.4	57 06.0	+11.2	71.9	57 23.9	+13.1	73.4	57 40.3	+14.9	74.9	57 55.2	+16.7	76.4	58 08.5	+18.6	78.0	58 20.2	+20.4	79.6	

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 44° , 316°

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.								
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z									
0	34	31.8	-45.0	122.5	33	59.3	-45.7	123.1	33	26.3	-46.3	123.6	32	52.8	-47.0	124.2	32	18.9	-47.6	124.7	31	44.5	-48.2	125.2	31	09.7	-48.8	125.7	30	34.4	-49.3	126.2	0
1	33	46.8	-45.3	123.3	33	13.6	-45.9	123.9	32	40.0	-46.7	124.4	32	05.8	-47.2	124.9	31	31.3	-47.9	125.4	30	56.3	-48.5	125.9	30	20.9	-49.1	126.4	29	45.1	-49.6	126.9	1
2	33	01.5	-45.5	124.1	32	27.7	-46.3	124.6	31	53.3	-46.8	125.2	31	18.6	-47.5	125.7	30	43.4	-48.1	126.1	30	78.8	-48.6	126.6	29	31.8	-49.2	127.1	28	55.5	-49.8	127.5	2
3	32	16.0	-45.9	124.9	31	41.4	-46.5	125.4	31	06.5	-47.2	125.9	30	31.1	-47.7	126.4	29	55.3	-48.3	126.8	29	19.2	-49.8	127.3	28	42.6	-49.4	127.7	28	05.7	-49.9	128.2	3
4	31	30.1	-46.1	125.6	30	54.9	-46.7	126.1	30	19.3	-47.3	126.6	29	43.4	-48.0	127.1	29	07.0	-48.5	127.5	28	30.3	-49.0	127.9	27	53.2	-49.5	128.4	27	15.8	-50.1	128.8	4
5	30	44.0	-46.4	126.4	30	08.2	-47.0	126.9	29	32.0	-47.6	127.3	28	55.4	-48.1	127.8	28	18.5	-48.7	128.2	27	41.3	-49.3	128.6	27	03.7	-49.8	129.0	26	25.7	-50.2	129.4	5
6	29	57.6	-46.7	127.1	29	21.2	-47.2	127.6	28	44.4	-47.8	128.0	28	07.3	-48.4	128.4	27	29.8	-48.9	128.8	26	52.0	-49.4	129.2	26	13.9	-49.9	129.6	25	35.5	-50.4	130.0	6
7	29	10.9	-46.8	127.8	28	34.0	-47.5	128.3	27	56.6	-48.0	128.7	27	18.9	-48.5	129.1	26	40.9	-49.0	129.5	26	02.6	-49.5	129.9	25	24.0	-50.1	130.2	24	45.1	-50.5	130.6	7
8	28	24.1	-47.1	128.6	27	46.5	-47.6	129.0	27	08.6	-48.2	129.4	26	30.4	-48.7	129.8	25	51.9	-49.2	130.1	25	13.1	-49.8	130.5	24	33.9	-50.2	130.9	23	54.6	-50.7	131.2	8
9	27	37.0	-47.3	129.3	26	58.9	-47.8	129.7	26	20.4	-48.3	130.0	25	41.7	-48.9	130.4	25	02.7	-49.4	130.8	24	23.3	-49.8	131.1	23	43.7	-50.3	131.5	23	03.9	-50.8	131.8	9
10	26	49.7	-47.5	129.9	26	11.1	-48.1	130.3	25	32.1	-48.6	130.7	24	52.8	-49.0	131.1	24	13.3	-49.6	131.4	23	33.5	-50.1	131.7	22	53.4	-50.5	132.0	22	13.1	-50.9	132.4	10
11	26	02.2	-47.6	130.6	25	23.0	-48.2	131.0	24	43.5	-48.7	131.3	24	03.8	-49.2	131.7	23	23.7	-49.6	132.0	22	43.4	-50.1	132.3	22	02.9	-50.6	132.6	21	22.2	-51.1	132.9	11
12	25	14.6	-47.9	131.3	24	34.8	-48.3	131.7	23	54.8	-48.8	132.0	23	14.6	-49.4	132.3	22	34.1	-49.9	132.6	21	53.3	-50.3	132.9	21	12.3	-50.7	133.2	20	31.1	-51.1	133.5	12
13	24	26.7	-48.0	132.0	23	46.5	-48.6	132.3	23	06.0	-49.1	132.6	22	25.2	-49.5	132.9	21	44.2	-49.9	133.2	21	03.0	-50.4	133.5	20	21.6	-50.8	133.8	19	40.0	-51.2	134.0	13
14	23	38.7	-48.2	132.6	22	57.9	-48.6	132.9	22	16.9	-49.1	133.2	21	35.7	-49.6	133.5	20	54.3	-50.1	133.8	20	12.6	-50.5	134.1	19	30.8	-50.8	134.3	18	48.8	-51.4	134.6	14
15	22	50.5	-48.3	133.3	22	09.3	-48.9	133.6	21	27.8	-49.3	133.9	20	46.1	-49.7	134.1	20	04.2	-50.2	134.4	19	22.1	-50.6	134.7	18	39.9	-51.0	134.9	17	57.4	-51.4	135.1	15
16	22	02.2	-48.5	133.9	21	20.4	-48.9	134.2	20	38.5	-49.4	134.5	19	56.4	-49.9	134.7	19	14.0	-50.2	135.0	18	31.5	-50.7	135.2	17	48.9	-51.2	135.5	16				
17	21	13.7	-48.7	134.5	20	31.5	-49.1	134.8	19	49.1	-49.6	135.1	19	06.5	-50.0	135.3	18	23.8	-50.4	135.6	17	40.8	-50.8	135.8	16	55.7	-51.2	136.0	17				
18	20	25.0	-48.7	135.2	19	42.4	-49.2	135.4	18	59.5	-49.6	135.7	18	16.5	-50.0	135.9	17	33.4	-50.5	136.1	16	50.0	-50.9	136.4	15	22.9	-51.7	136.7	18				
19	19	36.3	-48.9	135.8	18	53.2	-49.4	136.0	18	09.9	-49.8	136.3	17	26.5	-50.2	136.5	15	59.1	-51.0	136.9	15	15.2	-51.3	137.1	14	31.2	-51.7	137.3	19				
20	18	47.4	-49.0	136.4	18	03.8	-49.4	136.6	17	20.1	-49.8	136.9	16	36.3	-50.3	137.1	15	52.3	-50.7	137.3	15	08.1	-51.0	137.5	14	23.9	-51.5	137.6	13	39.5	-51.8	137.8	20
21	17	58.4	-49.2	137.0	17	14.4	-49.6	137.2	16	30.3	-50.0	137.4	15	46.0	-50.3	137.6	15	01.6	-50.7	137.8	14	17.1	-51.1	138.0	13	32.4	-51.5	138.2	12	47.7	-51.9	138.3	21
22	17	09.2	-49.2	137.6	16	24.8	-49.6	137.8	15	40.3	-50.0	138.0	14	55.7	-50.5	138.2	14	10.9	-50.9	138.4	13	20.6	-51.2	138.5	12	40.9	-51.5	138.7	22				
23	16	20.0	-49.3	138.2	15	35.2	-49.7	138.4	14	50.3	-50.2	138.6	14	05.2	-50.5	138.8	13	20.0	-50.9	138.9	12	34.8	-51.3	139.1	11	49.4	-51.6	139.2	11	03.9	-52.0	139.3	23
24	15	30.7	-49.4	138.8	14	44.5	-49.6	139.0	14	00.1	-50.2	139.2	13	14.7	-50.6	139.3	12	29.1	-50.9	139.5	11	43.5	-51.3	139.6	10	11.9	-52.0	139.9	24				
25	14	41.3	-49.6	139.4	13	55.6	-49.9	139.6	13	09.9	-50.3	139.7	12	24.1	-50.6	139.9	11	38.2	-51.0	140.0	10	52.2	-51.4	140.1	9	19.9	-52.0	140.4	25				
26	13	51.7	-49.6	140.0	13	05.7	-49.9	140.1	12	19.6	-50.3	140.3	11	33.5	-50.8	140.4	10	47.2	-51.1	140.5	10	00.8	-51.4	140.7	9	14.4	-51.4	140.8	8	27.9	-52.1	140.9	26
27	13	02.1	-49.6	140.6	12	15.8	-50.1	140.7	11	29.3	-50.4	140.8	10	42.7	-50.7	141.0	9	56.1	-51.1	141.1	9	09.4	-51.5	141.2	8	22.6	-51.8	141.4	7	35.8	-52.2	141.4	27
28	12	12.5	-49.8	141.1	11	25.7	-50.1	141.3	10	38.9	-50.5	141.4	9	52.0	-50.9	141.5	8	46.4	-51.0	141.7	3	57.4	-51.3	144.7	2	19.4	-52.0	144.8	1	30.4	-52.3	144.8	34
29	11	22.7	-49.8	141.7	10	35.6	-50.2	141.8	9	19.4	-50.5	141.9	8	57.9	-50.6	142.5	7	22.6	-51.3	142.7	6	34.9	-51.6	142.7	5	47.1	-51.9	142.8	4	59.3	-52.2	142.9	35
30	10	32.9	-49.8	142.3	9	45.4	-50.2	142.4	8	10.3	-50.6	142.5	7	22.6	-51.3	142.7	6	34.9	-51.6	142.7	5	47.1	-51.9	142.8	4	59.3	-52.2	142.9	36				
31	9	43.1	-50.0	142.8	8	55.2	-50.3	142.9	7	07.3	-50.6	143.0	6	31.3	-51.4	143.2	5	43.3	-51.6	143.2	4	07.1	-52.2	143.3	3	58.7	-52.2	143.3	31				
32	8	53.1	-49.9	143.4	7	04.9	-50.3	143.5	6	28.4	-51.0	143.6	5	40.1	-51.3	143.7	4	51.7	-51.6	143.8	3	14.9	-52.3	143.8	2	22.6	-52.2	144.3	33				
33	7	13.1	-50.0	144.0	6	24.3	-50.4	144.6	5	35.4	-50.8	144.6	4	44.6	-51.0	144.7	3	57.4	-51.3	144.7	2	10.4	-51.6	144.8	1	30.4	-52.3	144.8	34				
34	6	23.1	-50.1	145.1	5	33.9	-50.5																										

45°, 315° L.H.A.

LATITUDE SAME NAME AS DECLINATION

N. Lat. { L.H.A. greater than 180°Zn=7
L.H.A. less than 180°Zn=360°-Z

	38°			39°			40°			41°			42°			43°			44°			45°			Dec.				
Dec.	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.				
0	33	51.8	+44.3	121.6	33	20.1	+45.0	122.2	32	47.9	+45.7	122.7	32	15.2	+46.4	123.3	31	42.0	+47.1	123.8	31	08.5	+47.6	124.3	30	00.0	+48.9	125.3	0
1	34	36.1	+44.0	120.8	34	05.1	+44.7	121.4	33	33.6	+45.4	122.0	33	01.6	+46.1	122.5	32	29.1	+46.8	123.1	31	56.1	+47.5	123.6	31	22.7	+48.1	124.6	1
2	35	20.1	+43.6	120.0	34	49.8	+44.4	120.6	34	19.0	+45.2	121.2	33	47.7	+45.9	121.7	33	15.9	+46.5	122.3	32	43.6	+47.2	122.9	32	10.8	+47.8	123.4	2
3	36	03.7	+43.3	119.1	35	34.2	+44.1	119.8	35	04.4	+44.8	120.4	34	33.6	+45.5	121.0	34	02.4	+46.3	121.6	33	30.8	+46.2	122.1	32	26.0	+48.2	123.2	3
4	36	47.0	+42.9	118.3	36	18.3	+43.7	118.9	35	49.0	+44.5	119.6	35	19.1	+45.3	120.2	34	48.7	+45.9	120.8	34	17.7	+46.7	121.4	33	46.2	+47.4	121.9	4
5	37	29.9	+42.5	117.4	37	02.0	+43.3	118.1	36	33.5	+44.1	118.7	36	04.4	+44.8	119.4	35	34.6	+45.7	120.0	35	04.4	+46.3	120.6	34	33.6	+47.0	121.2	5
6	38	12.4	+42.1	116.5	37	45.3	+43.0	117.2	37	17.6	+43.8	117.9	36	49.2	+44.6	118.5	36	20.3	+45.3	119.2	35	50.7	+46.1	119.8	35	20.6	+46.8	120.4	6
7	38	54.5	+41.7	115.6	38	28.3	+42.5	116.3	38	01.4	+43.3	117.0	37	33.8	+44.2	117.7	37	05.6	+45.0	118.4	36	36.8	+45.7	119.0	35	37.4	+47.1	120.3	7
8	39	36.2	+41.2	114.7	39	10.8	+42.1	115.4	38	44.7	+43.0	116.1	38	18.0	+43.8	116.8	37	50.6	+44.6	117.5	36	53.8	+46.2	118.9	36	24.5	+46.9	119.5	8
9	40	17.4	+40.7	113.7	39	52.9	+41.7	114.5	39	27.7	+42.5	115.2	39	01.8	+43.4	116.0	38	35.2	+44.2	116.7	38	07.9	+45.4	117.4	37	40.0	+45.8	118.1	9
10	40	58.1	+40.3	112.7	40	34.6	+41.1	113.5	40	10.2	+42.1	114.3	39	45.2	+42.9	115.1	39	19.4	+43.8	115.8	38	52.9	+44.7	116.5	38	25.8	+45.4	117.3	10
11	41	38.4	+39.7	111.8	41	15.7	+40.7	112.6	40	52.3	+41.7	113.4	40	28.1	+42.6	114.2	40	03.2	+43.4	114.9	39	37.6	+44.2	115.7	39	11.2	+45.1	116.4	11
12	42	18.1	+39.2	110.7	41	56.4	+40.2	111.6	41	34.0	+41.1	112.4	41	10.7	+42.1	113.2	40	46.6	+43.0	114.0	40	21.8	+43.9	114.8	39	56.3	+44.7	115.6	12
13	42	57.3	+38.6	109.7	42	36.6	+39.7	110.6	42	15.1	+40.6	111.4	41	52.8	+41.6	112.3	41	29.6	+42.5	113.1	41	05.7	+43.4	113.9	40	41.0	+44.3	114.7	13
14	43	35.9	+38.0	108.7	43	16.3	+39.0	109.6	42	55.7	+40.1	110.4	42	34.4	+41.0	111.3	42	12.1	+42.1	112.2	41	49.1	+43.0	113.0	41	00.7	+44.7	114.6	14
15	44	13.9	+37.4	107.6	43	55.3	+38.5	108.5	43	35.8	+39.6	109.4	43	15.4	+40.6	110.3	42	54.2	+41.5	111.2	42	32.1	+42.5	112.0	41	45.4	+44.3	113.7	15
16	44	51.3	+36.8	106.5	44	33.8	+37.9	107.4	44	15.4	+38.9	108.4	43	56.0	+40.0	109.3	43	35.7	+41.1	110.2	43	14.6	+42.0	111.1	42	52.6	+42.9	111.9	16
17	45	28.1	+36.1	105.4	45	11.7	+37.2	106.3	44	54.3	+38.4	107.3	44	36.0	+39.4	108.2	44	16.8	+40.4	109.2	43	56.6	+41.5	110.1	43	35.5	+42.5	111.0	17
18	46	04.2	+35.4	104.2	45	48.9	+36.6	105.2	45	32.7	+37.7	106.2	45	15.4	+38.9	107.2	44	57.2	+39.9	108.1	44	38.1	+40.4	109.1	43	57.0	+43.0	110.9	18
19	46	39.6	+34.6	103.1	46	25.5	+35.9	104.1	46	10.4	+37.0	105.1	45	54.3	+38.1	106.1	45	37.1	+39.3	107.1	45	19.0	+40.4	108.0	44	00.0	+41.4	109.0	19
20	47	14.2	+33.9	101.9	47	01.4	+35.1	102.9	46	47.4	+36.4	104.0	46	32.4	+37.6	105.0	46	16.4	+38.7	106.0	45	59.4	+39.7	107.0	45	41.4	+40.8	108.0	20
21	47	48.1	+33.1	100.6	47	36.5	+34.4	101.7	47	23.8	+35.6	102.8	47	10.0	+36.8	103.8	46	55.1	+38.0	104.9	46	39.1	+39.2	105.9	46	04.2	+41.3	107.9	21
22	48	21.2	+32.3	99.4	48	10.9	+33.6	100.5	47	59.4	+34.8	101.6	47	46.8	+36.1	102.7	47	33.1	+37.3	103.7	47	18.3	+38.5	104.8	47	02.4	+39.6	105.8	22
23	48	53.5	+31.4	98.1	48	44.5	+32.7	99.2	48	34.2	+34.1	100.4	48	22.9	+35.3	101.5	48	10.4	+36.5	102.6	47	56.8	+37.7	103.7	47	42.0	+39.0	104.7	23
24	49	24.9	+30.5	96.8	49	17.2	+31.9	98.0	49	08.3	+33.2	99.1	48	58.2	+34.5	100.3	48	46.9	+35.9	101.4	48	34.5	+37.1	102.5	48	21.0	+38.3	103.6	24
25	49	55.4	+29.6	95.5	49	49.1	+31.0	96.7	49	41.5	+32.4	97.8	49	32.7	+33.7	99.0	49	22.8	+35.0	100.2	49	11.6	+36.3	101.3	48	59.3	+37.5	102.4	25
26	50	25.0	+28.6	94.1	50	20.1	+30.0	95.3	50	13.9	+31.4	96.5	50	06.4	+32.9	97.7	49	57.8	+34.2	98.9	49	47.9	+35.5	100.1	49	36.8	+36.8	101.2	26
27	50	53.6	+27.6	92.7	50	50.1	+29.1	94.0	50	45.3	+30.6	95.2	50	39.3	+31.9	96.4	50	32.0	+33.3	97.6	50	23.4	+34.7	98.8	50	13.6	+36.0	100.0	27
28	51	21.2	+26.6	91.3	51	19.2	+28.1	92.6	51	15.9	+29.5	93.8	51	11.2	+31.0	95.1	51	05.3	+32.4	96.3	50	58.1	+33.8	97.5	50	49.6	+35.1	98.7	28
29	51	47.8	+25.5	89.9	51	47.3	+27.0	91.2	51	45.4	+28.5	92.4	51	42.2	+30.0	93.7	51	37.7	+31.5	94.9	51	31.9	+32.8	96.2	51	24.7	+34.3	97.4	29
30	52	13.3	+24.4	88.4	52	14.3	+25.9	89.7	52	13.9	+27.5	91.0	52	12.2	+29.0	92.3	52	09.2	+30.4	93.6	52	04.7	+32.0	94.8	51	59.0	+33.4	96.1	30
31	52	37.7	+23.2	86.9	52	40.2	+24.8	88.2	52	41.4	+26.4	89.5	52	41.2	+27.9	90.8	52	39.6	+29.5	92.2	52	36.7	+30.4	93.5	52	32.4	+32.4	96.1	31
32	53	00.9	+22.0	85.4	53	05.0	+23.6	86.7	53	07.8	+25.2	88.0	53	09.1	+26.8	89.4	53	09.1	+28.3	90.7	53	07.6	+29.6	92.9	53	04.8	+31.4	94.7	32
33	53	22.9	+20.8	83.8	53	28.6	+22.5	85.2	53	33.0	+24.0	86.5	53	35.9	+25.7	87.9	53	37.4	+27.3	89.2	53	37.5	+28.9	90.6	53	36.2	+30.4	91.9	33
34	53	43.7	+19.5	82.3	53	51.1	+21.2	83.6	53	57.0	+22.0	85.0	53	60.1	+24.8	86.3	54	04.7	+26.1	87.7	54	60.4	+27.6	89.1	54	06.8	+30.9	91.9	34
35	54	03.2	+18.2	80.6	54	12.3	+19.9	82.0	54	41.5	+20.2	81.8	54	49.3	+22.0	83.2	54	55.7	+23.6	84.6	55	00.6	+25.3	86.0	55	04.0	+26.9	87.5	35
36	54	21.4	+16.9	79.0	54	32.2	+18.5	80.4	54	41.5	+20.2	81.8	54	49.3	+22.0	83.2	54	55.7	+23.6	84.6	55	04.0	+26.9	85.9	55	05.9	+28.6	88.9	36
37	54	38.3	+15.6	77.4	54	50.7	+17.3	78.8	55	01																			

LATITUDE CONTRARY NAME TO DECLINATION

L.H.A. 45° , 315°

Dec.	38°			39°			40°			41°			42°			43°			44°			45°			Dec.
	Hc	d	Z																						
0	33 51.8	-44.7	121.6	33 20.1	-45.4	122.2	32 47.9	-46.1	122.7	32 15.2	-46.7	123.3	31 42.0	-47.3	123.8	31 08.5	-48.0	124.3	30 34.4	-48.5	124.8	30 00.0	-49.1	125.3	0
1	33 07.1	-44.9	122.4	32 34.7	-45.6	123.0	32 01.8	-46.2	123.5	31 28.5	-46.9	124.0	30 54.7	-47.5	124.5	30 20.5	-48.1	125.0	29 45.9	-48.7	125.5	29 10.9	-49.3	125.9	1
2	32 22.2	-45.2	123.2	31 49.1	-45.9	123.7	31 15.6	-46.6	124.2	30 41.6	-47.2	124.7	30 07.2	-47.8	125.2	29 32.4	-48.4	125.7	28 57.2	-48.9	126.1	28 21.6	-49.4	126.6	2
3	31 37.0	-45.6	124.0	31 03.2	-46.2	124.5	30 29.0	-46.8	125.0	29 54.4	-47.4	125.5	29 19.4	-48.0	125.9	28 44.0	-48.5	126.4	28 08.3	-49.1	126.8	27 32.2	-49.7	127.2	3
4	30 51.4	-45.7	124.7	30 17.0	-46.4	125.2	29 42.2	-47.0	125.7	29 07.0	-47.6	126.2	28 31.4	-48.1	126.6	27 55.5	-48.8	127.0	27 19.2	-49.3	127.4	26 42.5	-49.8	127.8	4
5	30 05.7	-46.0	125.5	29 30.6	-46.6	126.0	28 55.2	-47.2	126.4	28 19.4	-47.8	126.8	27 43.3	-48.4	127.3	27 06.7	-48.9	127.7	26 29.9	-49.5	128.1	25 52.7	-49.9	128.5	5
6	29 19.7	-46.3	126.2	28 44.0	-46.9	126.7	28 08.0	-47.5	127.1	27 31.6	-48.0	127.5	26 54.9	-48.6	127.9	26 17.8	-49.1	128.3	25 40.4	-49.6	128.7	25 02.8	-50.1	129.1	6
7	28 33.4	-46.5	127.0	27 57.1	-47.1	127.4	27 20.5	-47.6	127.8	26 43.6	-48.2	128.2	26 06.3	-48.7	128.6	25 28.7	-49.2	129.0	24 50.8	-49.7	129.3	24 12.7	-50.3	129.7	7
8	27 46.9	-46.7	127.7	27 10.0	-47.2	128.1	26 32.9	-47.9	128.5	25 55.4	-48.4	128.9	25 17.6	-48.8	129.2	24 39.5	-49.5	129.6	24 01.1	-49.9	130.0	23 22.4	-50.4	130.3	8
9	27 00.2	-46.9	128.4	26 22.8	-47.5	128.8	25 45.0	-48.0	129.2	25 07.0	-48.6	129.5	24 28.7	-49.1	129.9	23 50.0	-49.5	130.2	23 11.2	-50.1	130.6	22 32.0	-50.5	130.9	9
10	26 13.3	-47.2	129.1	25 35.3	-47.7	129.5	24 57.0	-48.2	129.8	24 18.4	-48.7	130.2	23 39.6	-49.2	130.5	23 00.5	-49.7	130.8	22 21.1	-50.2	131.2	21 41.5	-50.6	131.5	10
11	25 26.1	-47.3	129.8	24 47.6	-47.8	130.1	24 08.8	-48.4	130.5	23 29.7	-48.9	130.8	22 50.4	-49.4	131.1	22 10.8	-49.9	131.4	21 30.9	-50.3	131.7	20 50.9	-50.8	132.0	11
12	24 38.8	-47.5	130.4	23 59.8	-48.1	130.8	23 20.4	-48.5	131.1	22 40.8	-49.0	131.4	22 01.0	-49.5	131.7	21 20.9	-49.9	132.0	20 40.6	-50.4	132.3	20 00.1	-50.8	132.6	12
13	23 51.3	-47.6	131.1	23 11.7	-48.1	131.4	22 31.9	-48.7	131.8	21 51.8	-49.1	132.1	21 11.5	-49.6	132.4	20 31.0	-50.1	132.6	19 50.2	-50.5	132.9	19 09.3	-51.0	133.2	13
14	23 03.7	-47.9	131.8	22 23.6	-48.4	132.1	21 43.2	-48.8	132.4	21 02.7	-49.3	132.7	20 21.9	-49.8	133.0	19 40.9	-50.2	133.2	18 59.7	-50.6	133.5	18 18.3	-51.0	133.7	14
15	22 15.8	-47.9	132.4	21 35.2	-48.4	132.7	20 54.4	-48.9	133.0	20 13.4	-49.4	133.3	19 32.1	-49.8	133.6	18 50.7	-50.3	133.8	18 09.1	-50.8	134.0	17 27.3	-51.2	134.3	15
16	21 27.9	-48.2	133.1	20 46.8	-48.6	133.4	20 05.5	-49.1	133.6	19 24.0	-49.6	133.9	18 42.3	-50.0	134.1	18 00.4	-50.4	134.4	17 18.3	-50.8	134.6	16 36.1	-51.2	134.8	16
17	20 39.7	-48.2	133.7	19 58.2	-48.8	134.0	19 16.4	-49.2	134.2	18 34.4	-49.6	134.5	17 52.3	-50.1	134.7	17 10.0	-50.5	134.9	16 27.5	-50.9	135.2	15 44.9	-51.3	135.4	17
18	19 51.5	-48.4	134.4	19 09.4	-48.8	134.6	18 27.2	-49.3	134.9	17 44.8	-49.8	135.1	17 02.2	-50.1	135.3	16 19.5	-50.6	135.5	15 36.6	-51.0	135.7	14 53.6	-51.4	135.9	18
19	19 03.1	-48.6	135.0	18 20.6	-49.0	135.2	17 37.9	-49.4	135.4	16 55.0	-49.8	135.7	16 12.1	-50.3	135.9	15 28.9	-50.7	136.1	14 45.6	-51.0	136.3	14 02.2	-51.4	136.4	19
20	18 14.5	-48.6	135.6	17 31.6	-49.1	135.8	16 48.5	-49.6	136.0	16 05.2	-49.9	136.2	15 21.8	-50.4	136.4	14 38.2	-50.7	136.6	13 54.6	-51.2	136.8	13 10.8	-51.5	137.0	20
21	17 25.9	-48.8	136.2	16 42.5	-49.2	136.4	15 58.9	-49.6	136.6	15 15.3	-50.1	136.8	14 31.4	-50.4	137.0	13 47.5	-50.8	137.2	13 03.4	-51.2	137.3	12 19.3	-51.6	137.5	21
22	16 37.1	-48.8	136.8	15 53.3	-49.3	137.0	15 09.3	-49.7	137.2	14 25.2	-50.1	137.4	13 41.0	-50.5	137.6	12 56.7	-50.9	137.7	12 12.2	-51.2	137.9	11 27.7	-51.7	138.0	22
23	15 48.3	-49.0	137.4	15 04.0	-49.4	137.6	14 19.6	-49.8	137.8	13 35.1	-50.2	138.0	12 50.5	-50.6	138.1	12 05.8	-51.0	138.3	11 21.0	-51.4	138.4	10 36.0	-51.6	138.5	23
24	14 59.3	-49.1	138.0	14 14.6	-49.4	138.2	13 29.8	-49.8	138.4	12 44.9	-50.2	138.5	11 59.9	-50.6	138.7	11 14.8	-51.0	138.8	10 29.6	-51.3	138.9	9 44.4	-51.8	139.0	24
25	14 10.2	-49.1	138.6	13 25.2	-49.6	138.8	12 40.0	-50.0	138.9	11 54.7	-50.3	139.1	10 09.3	-50.7	139.2	10 23.8	-51.0	139.3	9 38.3	-51.5	139.5	8 52.6	-51.7	139.6	25
26	13 21.1	-49.2	139.2	12 35.6	-49.6	139.4	11 50.0	-50.0	139.5	11 04.4	-50.4	139.6	10 18.6	-50.8	139.8	9 32.8	-51.2	139.9	8 46.8	-51.4	140.0	8 00.9	-51.8	140.1	26
27	12 31.9	-49.3	139.8	11 46.0	-49.7	139.9	11 00.0	-50.0	140.1	10 14.0	-50.5	140.2	9 27.8	-50.8	140.3	8 41.6	-51.4	140.4	7 55.4	-51.5	140.5	7 09.1	-51.9	140.6	27
28	11 42.6	-49.4	140.4	10 56.3	-49.7	140.5	10 10.0	-50.2	140.6	9 23.5	-50.5	140.7	8 37.0	-50.8	140.8	7 50.5	-51.2	140.9	7 03.9	-51.6	141.0	6 17.2	-51.9	141.1	28
29	10 53.2	-49.4	141.0	10 06.6	-49.9	141.1	9 19.8	-50.1	141.2	8 33.0	-50.5	141.3	7 46.2	-50.9	141.4	6 59.3	-51.2	141.5	6 12.3	-51.5	141.6	5 25.3	-51.9	141.6	29
30	10 03.8	-49.5	141.5	9 16.7	-49.8	141.6	8 29.7	-50.3	141.7	7 42.5	-50.6	141.8	6 55.3	-50.9	141.9	6 08.1	-51.3	142.0	5 20.8	-51.6	142.0	4 33.4	-51.9	142.1	30
31	9 14.3	-49.6	142.1	8 26.9	-49.9	142.2	7 39.4	-50.2	142.3	6 51.9	-50.6	142.4	6 04.4	-51.0	142.5	5 16.8	-51.3	142.5	4 29.2	-51.6	142.6	3 41.5	-51.9	142.6	31
32	8 24.7	-49.6	142.7	7 37.0	-50.0	142.8	6 49.2	-50.3	142.8	6 01.3	-50.6	142.9	5 13.4	-50.9	143.0	4 22.5	-51.5	143.0	3 37.6	-51.7	143.1	2 49.6	-51.9	143.1	32
33	7 35.1	-49.6	143.3	6 47.0	-50.0	143.3	5 58.9	-50.4	143.4	5 10.7	-50.7	143.5	4 22.5	-51.1	143.5	3 0.7	-51.2	143.5	2 45.9	-51.6	143.6	1 57.7	-52.0	143.6	33
34	6 45.5	-49.7	143.8	5 57.0	-50.4	143.9	4 18.2	-50.4	144.5	3 29.3	-50.7	144.5	2 40.4	-51.0	144.6	1 51.5	-51.3	144.6	0 1.2	-51.6	144.6	0 13.7	-51.9	144.6	35
35	5 55.8	-49.7	144.4	5 07.0	-50.1	144.4	4 18.2	-50.4	144.5	3 27.8	-50.7	145.1	2 40.4	-51.0	145.1	1 00.2	-51.4	145.1	0 11.0	-51.7	145.1	0 38.2	+52.0	34.9	36
36	5 06.1	-49.8	144.9	4 16.9	-50.0	145.0	3 27.8	-50.4	145.0	2 38.6	-50.7	145.1	1 49.4	-51.0	145.1	0 0.7	-50.8	145.6	0 40.7	+51.6	34.4	1 30.2	+51.9	34	